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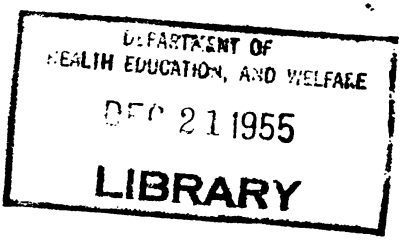

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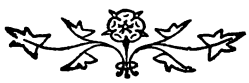

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[*For the California Teacher.*]

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ARIADNE.

A TALE FROM GRECIAN MYTHOLOGY.

[*Translated from the German by Mrs. Dr. Lane, formerly Principal of the Mason Street Cosmopolitan Primary.*]

THE only son of Minos, King of the Island of Crete, had been put to death by some Athenian youths, and, to atone for this, the City of Athens, in Greece, had been forced to submit to the ignominious penance of sending yearly seven youths, eighteen years of age, selected from their own sons, to Crete, there, shut up in an ingeniously constructed building, to serve as food for the Minotaurus, a monster that fed on human flesh. The wonderful structure was called the *Labyrinth;* it consisted wholly of intricate winding passages and cross passages. Whoever wandered therein became so confused by the turns of these walks that only by a miracle could he find his way out again. Into this labyrinth, once in every two months, was one of these youths brought, to be devoured by the Minotaurus.

For three years had Ægeus, King of Athens, fulfilled these mournful conditions; thrice had an Athenian ship brought to Crete seven youths eighteen years of age, and twenty-one families mourned each the loss of a son who had been sacrificed to the Minotaurus. For the fourth time the season approached

for the sailing of the ship which was to convey to Crete the unfortunate victims.

In this year Theseus, the only son of the King, had reached his eighteenth birthday; hence Ægeus experienced the anxiety of a father added to that of a ruler, for upon his son, too, the lot might fall, as, in fact, it did upon the decisive day.

On the very next day the ship which was to receive the youths lay, ready to sail, in the harbor; Theseus was with them, accompanied by his grief-stricken father. Among the other youths and their relatives was nothing but loud lamentations, but the eyes of Theseus flashed with manly spirit as he tore himself from his father and stepped aboard the ship, which soon brought them to the shores of Crete. Here an accident drew upon Theseus the attention of the daughter of King Minos; as the ship entered the harbor and was sailing by a steep and somewhat overhanging rocky cliff, covered with a growth of flowering shrubs, a wreath from above suddenly fell upon the head of the royal youth and rested there. While his companions looked upon this as a sign that he was destined to become a sacrifice, he considered it a token of his preservation, deliverance, and victory. "In this faith," said he, "will I wear this wreath upon my head till my fate shall be decided." "Thy faith shall not deceive thee!" a gentle voice from above seemed to whisper to him.

Conducted by the guardsman on watch, whom the innocence, noble carriage, and whole bearing of Theseus had prepossessed in his favor, into the presence of the King's daughter, the latter said to him: "Youth, as I leaned too far forwards towards thy ship, the wreath fell from my head and rested upon thine, and when I heard thy trustful words I made a vow to deliver thee. Take this clew, make fast the end at the entrance of the labyrinth, and, as thou walkest, let it unwind; thus, following it as thou again windest it up, it can serve as a guide for thy return." She then gave him further instructions to kill the Minotaurus, and added: "Heaven bless thy labor! But willst thou then deliver me from the consequences and dangers of my deed?" He promised it.

Theseus, at the appointed hour, entered the hapless place; but, true to the instructions received, soon after his entrance he

fastened the end of the thread to the rock and let it continually unwind. Thus he arrived at the misshapen creature's place of retreat.

Instructed by Ariadne, the King's daughter, he slew the monster; the dreaded Minotaurus lay at his feet, and, led by the thread of Ariadne's clew, Theseus returned through the thousand-fold windings.

Faithful to his promise, Theseus rescued Ariadne from the danger hovering over her head. As the assistance she had rendered Theseus could hardly remain a secret, the avenging consequences would fall upon her head alone; hence, at the very spot where the wreath had fallen from her head upon his, he took her on board the ship, which now, with all the rescued victims, was to return joyfully to Athens.

Seeking harbor from a storm, they landed upon the Island of Naxos, near which they found themselves. The storm broke, but passed over without harm, and Theseus gave instructions to depart. All were assembled—Ariadne alone was missing; notwithstanding the most careful search, she could not be found; they concluded that she was lost; but, fallen asleep in a dense thicket, search had failed to discover her; she herself had known nothing thereof. Only when the ship was in the distance did she awake; from the shore she saw it sail further and further away. Exhausted with sorrow and lamentations, she sank to the earth, to sleep and dreams. Yet was she not lost. Awaking, there appeared before her one of the immortals, home-returning from his beneficent and triumphal progress through the earth; his form was of immortal youth, and he was surrounded by the attendants with whom he usually showed himself upon earth. "That thou hast done, and thy fate," said he, "are known to me, but thou art worthy of a higher destiny than life among mortals can secure. Follow me into the realm of the immortals and become my bride!" Extending her hand to her deliverer, she followed him, while he took from her head the crown and threw it, as token of his godhead and witness of his marriage, to the heavens, where it shone forth in splendor as a brilliant constellation.

Noble women and mothers, let us contemplate and reflect

upon this story from our standpoint, where we consider everything in its bearing upon the development of mankind, where everything may find an allegorical meaning.

It was the noble nature and the sublime dignity of character shining boldly forth in the youthful Theseus which attracted and fastened the gaze of Ariadne upon him, at the same time inducing her to sacrifice herself to the vitalization and development of these virtues. In what new-born and well-formed child, dear mother, does not the same sublime character, the imperishable dignity of human nature, announce itself? Have not parents and lovers of children remarked upon it, that the total expression is more full of meaning in the very earliest days of life?

But experience and observation have taught us all that the future path in life of the child—of the young human being—is like Theseus' way of escape, dark, intricate, interrupted, and filled with struggles, and that the true emancipation of ourselves and our fellow beings from the rude and sensual powers of nature and from egotistic strife, is indeed an aim that may well be likened to that of Theseus, but which is, nevertheless, clearly discernible to the inner eye, to the soul's unobscured vision, to the self-possessed mind; ruin threatens him who, frightened at the obscurity, allows the inner light of discretion to become extinguished; ruin him who, seeing no external connection, no internal unity, suspects, believes, perceives, no inner concord; ruin him who would combat with the danger, ignorant of its nature and character.

Thus, honored mothers, thoughtful women, you already see portrayed the fate of the child now lying wrapped in its swaddling-clothes, but which is yet, in the future, to strive after true manhood. To look firmly and calmly in the eye of danger when it approaches, that it is to which our children must be educated; to know the nature of the danger that they may know how fitly to meet and oppose it, that it is which our children must be taught. But most important of all to which the ball and thread of Ariadne points, is that children must be taught to look upon life (as upon the ball) as a connected whole, not only in its completeness, but also in its separate phases and acts (as in the thread unwinding from the ball).

The mother's spirit, self-collected and self-collecting, comprehends this unity, contemplating life teaches that it is to be seized hold of and made manifest. The feeling of unity, the seeing and foreseeing of the complete connection of the whole, this exalts the individual powers and the self-confidence which adds to the dignity of man; this brings the divine gift of consciousness to repose in the unity of, to live and work with, the great connected whole; this gives courage to look with steady eye upon danger, discretion to oppose and overcome it.

Here, noble, painstaking mothers! here, in the picture of Ariadne, the deliveress, is clearly demonstrated what you are to do for your darling ones, would you so educate them as to prepare them for the labyrinthian way, for the conflict of life; teach—practice it—to hold fast to the high purpose of being, to the unity of life, to prove it in spirit, to verify it in act and deed. Thus, noble-minded women, in and through your own lives imparting to your children unity of life, you will become not only their educators and liberators, but also educators and liberators of mankind from the wasting power of uncultured nature and selfish passions—and behold! already beaming toward you from the blue dome of heaven, the radiant splendor of *your* crown of victory, the crown of Ariadne!

Do you, however, prefer to look upon your life, your destiny, your exemplar, in brighter purity, as mirrored in the, to us, more hallowed life of a Christian mother, yet here, too, you but find the same; respect, recognition, and fostering of human worth and dignity, consideration of, and attention to, the unity of life; and here, too, imperishable gratitude for a deed apparently transient, but reposing on the unity of the immortal life of man.

EXTRACT FROM "ARIADNE'S CROWN."

BY HERDER.

See, 'mong the stars, Ariadne's fair crown shines in bridal-like beauty;
Modest its luster;*
Emblem of woman's true glory, thou beck'nest to honor exalted.

Nature bestowing on each sex a destiny special,
Said to the man: "Protector be thou, and reign thou benignly;
Courage and strength are for this to thy portion allotted; th' gentler
Daughter received a more delicate gift from the mother, th' thread of
Prudence, to lead thereby man out of life's labyrinthian windings."
Silently added she greatness of soul and enduring affection.

"Sacredest treasures, the buds of creation, to thee are entrusted,
Foster and cherish the happier heirs of the ripening future;
Like Atalanta, soar to thy aim, leaving dangers behind thee;
Work without ceasing, and Hope be thy constant abiding companion."

Honor to woman! Freedom's her name! † in the field of her vision
End and beginning one glance comprehends, and the portal of egress;
Heroes despairingly bow where her far-reaching eye sees deliv'rance;
Off'ring of self as a sacrifice, brings she, the victim, to rescue.

Lo, ye deliv'rers! behold Ariadne's bright jewels, and reach, oh!
Reach to bewildered and wandering mortals the thread of the lab'rinth.
Muse upon this! Educate! you are only girt with the power
Happiness' riches to give to the far-future vast generations.

* ARIADNE'S CROWN occupies a small space in the northern celestial hemisphere; it is a constellation easily distinguished, consisting of twenty-one stars; its greatest star is of the second magnitude, and is called the *Gemma* (The Gem).

† The German word *Frau* (woman) is derived from the word *frei*, meaning *free*.

[*For the California Teacher.*]

OUR DISTRICT LIBRARY SYSTEM.

For some years the California School Law has contained provisions requiring that a certain part of the State School Fund be set apart for the purchase of libraries for the use of schools and the people of the various districts of the State. The law, as it stands, provides that ten per cent. shall be so appropriated, if such ten per cent. do not exceed fifty dollars, when fifty dollars shall be appropriated, with an exception in the case of incorporated cities and towns; that the Trustees shall expend the money so set apart solely for the purchase of library books; and that if they neglect or refuse to invest the money, the County Superintendent shall do it for them.

The theory upon which these sections of the law are based is an admirable one. It recognizes the demands of children for intellectual employments during leisure hours; it aims to develop and cultivate a taste for reading of the right sort by prescribing the books that shall be perused, and it endeavors to bring within the reach of those whose means will not permit the purchase of an extensive, or perhaps even a small, library, the facilities for study and culture they may so much covet. All this is excellent. Public libraries are desirable institutions.

Their existence is an evidence of the enterprise and culture of any community in which they may be found. There is perhaps not a city of any prominence in the United States that has not its public libraries; and it is to be hoped that the day is not far distant when they will be not only public but free.

But upon our system are engrafted some evils. Tares will always grow with the wheat. Damaging parasites will invariably attach themselves. It is impossible were it important to enumerate all of these. In the present connection, I shall notice but one. From the facility with which books can be procured, there has resulted a habit of hasty indiscriminate reading that is almost as detrimental as though there were no habit at all. It is hardly necessary to repeat that he who reads most has not always the finest mind, nor is yet the best instructed. A comparatively few books will suffice for the study of thinking men. There is to-day too much reading and skimming, and too little study and thought.

Especially is this true in the case of children. Habits and tastes are developed and shaped in childhood. To children a small, well-assorted library becomes an absolute necessity. A few books of the right kind carefully read, and read not for the mere sake of reading, but to be remembered, are of infinitely more value than hundreds carelessly turned over and thrown aside to be forgotten. The "Life of Washington" and the "Life of Clay" were to Lincoln as a boy more precious than a score of "story books" could possibly have been. They had more real influence in shaping his character and molding his thought than any number of moral tales and *quasi* novels. So may each one recur to his own experience and recall a work of travel or biography read with keen and longing interest, because its name had been suggested by some watchful friend, or the hungering mind had sought solid food. Hence the tendency to increase our public school libraries to an inordinate size is as great a mistake as though they were abolished altogether.

But there are other evils consequent upon the present system. If we could be sure that all which the law appropriates were judiciously expended, even if the books purchased were not so freely circulated or carefully read as they might be, there would not exist so much cause for complaint. But we know that this

is not the case. The law as it stands, besides setting apart a certain fund and designating the object for which it shall be spent, says that "if the Trustees neglect or refuse to purchase such books, then it shall be the duty of the County Superintendent to expend the Library Fund to the credit of such district, and pay for the books on his own warrant." Here is a chance, and almost the only one the law affords, for shrewd Superintendents to make something by way of official speculation. More than one instance has come to my knowledge of a Superintendent investing the Library Fund in such a way. In every case there has been vexation and trouble. In no instance has the Superintendent given his personal attention to the selection of the books purchased; nor has he seen that they were delivered according to contract. It is impossible in the nature of things that he could; and therefore the power should be taken out of his hands. Worse than all this, about half of the libraries never get any benefit from purchases made, because the books selected are not adapted to the grade of school; or, sent to some irresponsible or indifferent person, become scattered and never reach the shelves of the library at all.

Another instance of the failure of the present system is to be seen in the case where the Trustees, not yet ready to procure their library by reason of lack of facilities for keeping it or some other obstacle, draw the money set apart for the Library Fund and deposit it with their bookseller until such time as they shall call for their books. In course of time, through change of Trustees or loss of records, the amount of money so deposited cannot be ascertained, and the district must at last take what the honesty or liberality of their bookseller dictates. This is no imaginary evil, but a wrong that has come within my personal observation.

Now there is a very simple remedy for all of these things. Let the law be changed so as to make it optional with the Trustees whether they will expend any money for library purposes or not; limit the amount which may be so expended to ten per cent. of the State Fund, if that limit be the most desirable one; and take the matter of expending the money entirely out of the hands of the Superintendent. The truth is that many of our districts have as yet very indifferent school houses, and every

dollar is needed, and in some cases will be for years to come, to provide suitable buildings and furniture; while others which are located in sparsely settled communities whose lands perhaps are not very productive and the people poor, need for purposes of tuition every dollar that can be made available. But, giving to Trustees the power to expend not more than a certain sum for the library whenever they deem it can be advantageously done, will give to each district a library just as soon as it will be of any substantial benefit to that district.

Besides that objectionable feature of the law which makes it obligatory upon Trustees to expend the money whether it is desirable or not, there is a defect in the law because it makes no provision for those cases where, after a number of purchases through a series of years, the library becomes large enough for present uses. In many cases the library soon becomes of sufficient size, and it is wholly unnecessary to expend the whole ten per cent. required. It may indeed be proper to make a few purchases of new books, but one per cent. of the State Fund may be amply sufficient. Under the present system, however, there is no choice, and Trustees must go on making purchases and lumbering the shelves with articles which represent most emphatically non-productive capital. In the city of San Jose there was expended last year for school library purposes the sum of $57 83. The gentlemen who constitute the Board of Education of that city are men of culture and sound judgment. They realize the importance of libraries as fully as any one else. But the city schools were already supplied, the money was needed for other purposes, and but a trifling outlay was made. The law should be such that Trustees in every district might act in the matter at their discretion.

I am heartily in favor of school libraries. I would have, if possible, in every district of the State a library conducted like one that I might mention in Santa Clara county. The library contains a very choice selection, to which of course the pupils of the school have free access. Attached to the school house is a small reading room, where may assemble those who, by payment of a small fee, have the privilege of the library. It thus becomes of inestimable value to the community. It forms an object of common interest, and will have great influence for

good. If such could be established everywhere the objections to the system would cease to have much weight. There would soon be created a thirst for knowledge that nothing but the truth itself would quench. That knowledge would assist its wonderful power; and every year would witness in an increased degree the growth of our people in refinement, culture and intelligence.

GEO. F. BAKER.

[*For the California Teacher.*]

WHAT SHALL OUR CHILDREN LEARN?

For some time past educators have been made to seriously think of a more intimate connection of our system of public schools with methods of moral and industrial culture. We are liable to err in considering the mere *elements* of education for education itself. The pupil who has gone through our common school course of study, and has perhaps graduated at a high school, is but poorly prepared to engage in the every-day practical pursuits of life. Whilst our scheme for intellectual culture in the elements of text book knowledge seems complete, the personal, social, and moral habits of pupils seem to be neglected somewhat. There is little, also, in the course of study to stimulate a desire for knowledge and practical engagement in some of the industrial arts. Whilst these pursuits are languishing in our country for want of cheap labor and skilled labor, our towns and cities are overrun with idle youths fast maturing into "hoodlums," bar-room loungers, gamblers, and such like. With plenty of work to be done and thousands of hands that might do it—hands that need the work, and cannot live honorably without it; and work that needs the hands and cannot be accomplished without them—is a problem easily answered, however difficult the solution may be. The answer is: Set them to work. The method of doing this is the puzzle of philosophers and humanitarians.

One of the first ideas our boys attain to is that they may become Presidents, or at least Congressmen. They fall to hacking imaginary cherry trees—become indoctrinated in some of the tricks of politicians. Honest, plodding labor is looked upon

with contempt. They become hoodlums, which is but the tadpole state of our chronic office-seekers, and every newspaper we take up has some item of misdemeanor committed by idle boys, and a long moral lecture to the guardians of public weal for allowing them to run at large.

Hoodlums of the gentler sex, but under other names, are not less frequent—sadly too many. That our girls should be required to know something of the industrial arts needs no argument from me in this day when womens' rights and wrongs are so common a theme on every tongue. It is evident our girls cannot all become teachers, or milliners, or lecturers, or missionaries to India or China. Neither is it best that they should be used, however handsome it makes them appear, as walking machines on which to display the latest styles of dry goods and jewelry. There is work for their hands to do—there are many of the industrial arts that women can engage in as well, and often better than their brothers.

It is a proverb among the Prussians, truer than most proverbs, "Whatever you would have appear in the life of a nation, you must put it into its schools." We feel and know that this is true in our own country. But do we reduce it to practice?

Our teachers hold certain certificates entitling them to teach. They obtain these by answering a certain per cent. of questions, scarcely one of which pertains to any moral or industrial culture. I have seen some of these parchments, and the questions prepared by the Boards of Examiners, and all the qualifications that seem to be required of our teachers pertain to certain studies called arithmetic, geography, grammar, history, and the like. These things are good to put into the schools, but abstractly they possess no life. They are but the rind of some good meat that should be within. That which should appear in the life of our nation, the simple virtues, industry, frugality, honesty, etc., are not taught by authority of law or inclosed in teachers' certificates. The fact is, if we would legislate for the perpetuity of our free institutions, for the abatement of crime, or for anything else, we must adopt the method of Lycurgus, the law-giver, who resolved the whole business of legislation into the education of the young. His laws remained in force seven hundred years. Milton was impressed with this fact as

to Governments when he said: "To make the people fittest to choose, and the chosen fittest to govern, will be to mend our corrupt and faulty education." Sir Thos. Moore, referring to legislative faults, says: "Our law-makers first make thieves and then make laws to punish them, and that is about all that can be said."

James Anthony Froude refuses to admit that a transition from the old industrial education of past generations to the modern book education, is a sign of what can be called progress. Five out of six of us have to earn our bread by manual labor, and the apprenticeship, he thinks, to a trade, with the Lord's Prayer and the Commandments at its back, has not so far proven the least useful method. The *doing* of right alone teaches the value or the meaning of right, and religion can be no more learned out of books than seamanship, or soldiership, or engineering, or painting, or any practical trade whatsoever. An eminent educator of this country says: "That pupil is best educated who is best prepared to learn." I should add to that, "and no pupil is more than half educated who has not acquired a power to honorably earn his living at the end of his tutelage."

We look with a great deal of wonder at those who from "poor but honest parents," and industrial pursuits of the commonest sort, have risen to places of eminence. When we examine the list it is a long one, and embraces the most eminent persons of the world. Arkwright, Linnæus, Robert Peel, Humphrey Davy, Benjamin Franklin, Elihu Burritt, Governor Palmer, Erastus Corning, Senators Douglas and Wilson, Thurlow Weed, President Lincoln, and a host of like personages numerous through all ages.

Has it ever occurred to us to make a list of those who from *eminent* parents and no particular industry have sustained that eminence and become great and useful members of the human family? I fear the list would be shorter than we might at first suppose. These are the ones of all others that deserve applause. The world may not call them "self-made," but they are equally deserving of credit. Their temptations have been greater. Having ease and position, they have been tempted to become indolent, and to avoid the hardening and toughening processes of the world's hammer, anvil, and furnace. The fact is, every

one is "self-made" who is distinguished, whatever his opportunities or ancestry may have been.

May we not at times almost entirely overlook the true object of our free public schools? If our common school education is to stop with the mere acquirement of reading, writing, and mathematics, with some knowledge of language, we have gained little or nothing. We have simply educated at the expense of the State a portion of individuals to become perchance the more expert rascals. In 1868, of the 17,000 criminals in the United States, ninety-seven per cent. had never learned a trade. It may be that a large part of these criminals were illiterate. The educated ones were not caught; or, if caught, were not convicted. In this case a free school education served a double purpose—it freed the criminals of punishment, and the Government of the expense of their confinement! I will not endeavor to estimate the influence they still exert on society.

It seems to me the public school will only have accomplished a part of its object where the mere forms of the text books have been mastered. The maxim of the State should still be the old maxim to the fathers: "Give your son a Bible and a calling" —the Bible truths and morals as understood in the broad sense of Christianity, free from tradition or sectarian bias; and a trade by which an honest living may be obtained.

C. L. ANDERSON, M. D.

ACADEMY OF SCIENCES.

A regular fortnightly meeting of the California Academy of Sciences was held at the rooms on Clay street, September 2d. The attendance was unusually large, embracing several ladies, among whom was Mrs. Agassiz, the great attraction being the expected presence of the distinguished scientist, Professor Louis Agassiz. Not only were the seats in the assembly room filled, but the standing accommodations as well were entirely occupied, and quite a number were disappointed in gaining admission. Shortly before 8 o'clock the illustrious visitor entered the hall, accompanied by Professor Davidson, President of the Academy,

and other prominent members. He was looking hearty and jovial, none the worse for his long voyage at sea and arduous labors in the cause of science, extending continuously through a period of 260 days.

In introducing Professor Agassiz, who was received with great applause, the President remarked that he had cheerfully accepted the invitation to meet the members of the Academy, forbearing to plead the fatigue he must experience so soon after the completion of his voyage and trying labors. And the Academy must highly estimate the honor conferred in being the first to hear his voice after the termination of an expedition that had accomplished so much in scientific research.

REMARKS OF PROFESSOR AGASSIZ.

Mr. President and Gentlemen: It gives me very great pleasure to be among you this evening, and I can assure you that as long as I shall live I shall be proud to have met such a reception at your hands as has been tendered to me this evening. Twenty years ago, when your Academy was founded, I longed to come across the continent, and perhaps to stimulate and encourage those who were struggling in their efforts to organize a scientific body in a community which was then entirely engaged in gathering gold. My reverence for the Academy of Sciences of California has been growing since I have seen, through your published proceedings, that in a city which is so entirely absorbed by business you have raised the standard of intellectual culture; and as I have devoted my entire life, without regard to anything else, to the promotion of knowledge, I have felt that you were doing a good thing, not only for the City of San Francisco, not only for the State of California, but for the United States as a great empire, as a power among nations; for you show by your zeal, among the difficulties which surround you, that you mean, even if you should not succeed to the full extent that you desire, to keep up the spirit which leads forward in intellectual growth. Now, I hold that it is your mission to show to the western part of this continent that without intellectual growth there is no greatness for a State. It is that which you have to bring to the full understanding of the whole community. You are surrounded with wealth as no State ever

was. You have men among you who are richer than kings of the Old World, and yet I see you are still in close quarters. You have not rooms in which to display your acquisitions; you have not the means of making your pursuits inviting to the community at large, and with whom does it rest to foster these interests of intellectual growth? With those who have the means. Let them take the example of the rich men of Massachusetts. I know what they can do. I went single-handed to Cambridge, to teach natural history, twenty-five years ago. When I delivered my first lecture, there was not in the University a single specimen to illustrate what I had to say. And yet, a little band of students, feeling an interest in what they could learn in the lecture-room, and others, thought such a pursuit was worth encouraging, and by and by the idea arose that a museum would be of use, and the means were gradually forthcoming, at first sparingly in small contributions, but gradually more liberally in larger sums, until at this moment, after fourteen years only, the museum at Cambridge stands, in my estimation, without parallel in the world.

It may sound like an exaggeration, and yet I will explain how it is possible. The institutions of science in the Old World have grown through centuries. They have been founded upon the ideas which were developed by science in the course of time. They were organized with the means then at the disposal of the investigators of the time, and science has made such progress that now these great institutions are in a measure superannuated, because they cannot be rejuvenated. They are so organized that it is impossible in the halls of the British Museum or in the halls of the Jardin des Plantes, to introduce those appliances which modern research requires. Our little museum was started with the ideas of to-day, and has grown with them in consequence of that. Such materials only were collected as have an immediate bearing upon the questions of the time; and as science advanced those materials were increased in the direction in which progress was making. And there was a facility for that in the very organization of the whole institution; and that has been so felt by our citizens that they have extended to me every facility which I could wish for. I have had for the last five or six years all the means which I was capable of expending profit-

ably. And yet, you are richer than Boston—a great deal more so. You have a great many more men who could contribute in that liberal way to the organization of an institution which would benefit not only those interested especially in natural science, but which would make observers. This is what the world wants—not books to read, but men to learn what is not yet known. Those men cannot be educated in the school-room. They must be educated in Nature, among specimens, by the teachings of that thing which has not been explored now. Knowledge must be obtained, and from where are those materials to be forthcoming? The student has not time to go into the field and gather his materials for work. He must have such aid and must have such stores as would bring the facilities for study closer to his laboratory.

What would you think of the man who would raise himself his food when he is engaged in the law business or in the medical profession? You would think he was wasting his time. Now I say the scientific man is wasting his time or is obliged to waste his time when he is not provided with the appliances with which he can work and which he is capable of producing. And I hold it is one of the duties of those who have the means to help those who have only their head and who go to work with an empty pocket.

So I think that one of your duties, besides fostering and nursing the interest you individually feel for science, is to arouse that general interest in the community, which will make every true patriot, every lover of his State, every philanthropist, every man who has the heart to leave a good repute and to leave an honorable memory, desirous of contributing to your progress. Not only have you that before you, your own work and pleasure in the work, but you have also to help one of your institutions, which has already spread the good name of California everywhere where science is cultivated. Your geological survey is a model of scientific research. It has been conducted in a spirit and with a success which has cast a shadow over the geological survey of the Eastern States. There is not one—not that of Massachusetts, not that of New York, nor that of the younger States further west, but east of the Rocky Mountains—which can compare for beauty of execution, for accuracy of research,

for splendid generalization, with those volumes of your geological survey which have already seen the light and been given to the world. And if you can secure the continuation of that work to its completion, you will have done for your State and for science a good and an excellent work.

You have too to help your University that is growing. There was a time when it was said in Europe, that no American book was worth opening or reading. "Who reads an American book?" We have now books read all the world over. There was a time when we had to send our students abroad in order to complete their education, and when even our colleges gave them, at the best, only elementary culture. Now our colleges are taking a step forward—are making such progress, our institutions are improving in such a way that I hope to see the day, old as I am, when European students shall flock to our universities. There is a spirit of freedom which pervades study in America that is wanting in the Old World, where the professor, in order to keep up his head and be able to live and be supported by the government, has to be the servant of the Minister of Public Education, and do his bidding. Here we do the bidding of only our own consciences, and do the work as we think it ought to be done. And European students will learn that to add to their knowledge that spirit of freedom they must flock to our universities. And you are organizing one here which I hope will progress so fast that when we have attracted to the Eastern States some of the European students, they will soon be seen crossing the continent and coming to see you also. And do not be too short in your expectations. Do not look too near the present movement, but look forward, and that forward, however distant you think it now, will be at your feet before many years.

When I saw to-day, for the first time, San Francisco through the Golden Gate, I was amazed. I look upon it as one of the marvels of modern times, that there should be a city standing on these shores, so grand, so prosperous, so rich—and so young. And what you have achieved in material prosperity do not despair to achieve in intellectual growth in the same short time. If you will only put the shoulder to the wheel and have confi-

dence in yourselves that you can do it, you will achieve that as you achieved the other great result. (Great applause.)

Mr. Davidson.—I know the Professor needs no thanks from us for his kind words. He must feel such thanks as he sees them beaming from the countenances of each one here. (Applause.) I hope our new President of the University of California will favor us with a few words, for we have in him a man come among us with youth, ability and backbone, and these are the kind of men we want in our institutions. I introduce to you Professor Gilman, late of Yale College.

REMARKS OF PROFESSOR GILMAN.

Professor Gilman said: I cannot but regard it as a most happy omen that the first opportunity I have after coming here to take charge of your educational institution, of meeting with the citizens of this place is on an evening when you are assembled to pay homage and render greeting to one who brings the best culture of the Old World to bear upon the solution of the great problems which appertain to the New; when you are here to greet so eminent a man as he who has just addressed you. I can echo his words in a faint way, and take up a few of the thoughts he has dropped. He has told you that the museum at Cambridge is distinguished as the museum of to-day. Should it not be so with the University? Should it not be a university for the wants of to-day? Should not we use it for the great problems which belong to this generation, for the great future that is opening upon us? Should not we all unite to gather up the best of the past experience of every nation, the accumulations of all men before us, and bring them to bear upon our society, and upon, I trust you will allow me to say it, our own State of California? One other thought I should like to re-echo. Professor Agassiz has told you that the great want of science is observers, and the great want of society is men. Now, the object of the University is to turn out men, not narrow specialists, though they may be as eminent as possible in this or that department which they may pursue, but men of honest and earnest purpose, men of true wisdom, and that is what the University has before it. I will not prolong these remarks, but let me trust that the true utterances you have heard from the dis-

tinguished orator who has spoken to you, that you need an institution for to-day, and an institution for the training of men, may sink deep into all our hearts and inspire us all for the work which is to come. (Great applause.)

REMARKS OF PROFESSOR TORREY.

The venerable Professor Torrey, of Columbia College, New York, being present, responded to a call from President Davidson, as follows:

After the distinguished gentlemen who have preceded me, there remains but little for me to say. Those who know me are aware that for many years I have had the greatest desire to explore this great State. I may say that for many years I have had California on the brain. For a long time I never expected to see it, although I spent many years in investigating the collections of natural history, especially of botany, brought from California, as the various volumes of railroad explorations, etc., will show. Seven years ago I had the pleasure of coming here for the first time, and attending the meeting of this Society. That pleasure is now renewed under peculiar circumstances. So happy am I to meet my excellent friends and the gentlemen who have just addressed you. Now I may say my joy is no less than it was when I was here before. I have spent all my time without cessation, since I arrived, in examining the botanical productions of California. Although botany has occupied so much of my time, chemistry is my profession, and I have regarded botany as an amusement; yet my zeal in either study has not diminished, notwithstanding I am many years older than my good friend near me, who thinks he is advanced in years. I have been galvanized into making you another visit, and now I propose to remain longer and then return to work still more upon the flora of this State, hoping to add some material to the large work which is expected when the geological survey is completed. I have done already much toward it, and hope to do more before I am taken away. (Applause.)

RESULTS OF THE "HASSLER" EXPEDITION.

Professor Davidson said that in inviting Professor Agassiz to address the Society, he intimated to him that but a few words would be expected from him. He hoped, however, that before

leaving us, Professor Agassiz would say something on what has been accomplished by the expedition under his charge.

Professor Agassiz said: It may be thought egotistic in me to speak of what has been accomplished under my direction, but I may say that every officer and person connected with the ship, from the Captain to the sailors, contributed to the success of the expedition, rendering such help as made my labor an easy task and the journey a very profitable one. Dr. Steindachner, whose exertions have been so untiring, deserves special mention, as but for him the collection would not have been one-half so large. We had younger men, but none of more unwearied industry. Mr. Blake, Dr. Hill, and in fact all connected with the force worked diligently and efficiently, while everybody on board contributed to the success. Mr. Heald rendered great service in the collection of specimens of marine plants, although his legitimate duties were of an entirely different nature. Dr. Pitkin has also been of much service, and all have taken as much interest in forwarding the objects of the voyage as the party whose especial duty it was to carry those objects out. During the 269 days of the voyage we packed and sent home 243 boxes and barrels of specimens—nearly a barrel a day—the contents of each one of which would fill a handsome case, such a quantity that the trustees of the college would be obliged to put up additional buildings for their accommodation. It would be tedious to enter into details, but I may mention that the collection of specimens of fishes amount to over 20,000, and the specimens of various kinds in all over 100,000. They were not preserved in the old-fashioned way, dried and rendered nearly useless, but put in alcohol, over 3,000 gallons being used for the purpose. Thus preserved, the specimens may be dissected and analyzed with facility, and the collection will afford materials for years to come. We shall be able to contribute materially to the resources of scientists elsewhere; in fact, no complete investigation can be made in Europe or elsewhere without the aid of specimens from America, while we are in a position to be independent, and can at last, not only stand on our own legs, but help also to sustain those to whom we have been accustomed to look for support.

At the close of Professor Agassiz's remarks, the President of

the Society stated that in order to allow members an opportunity to personally welcome their guest, further proceedings would be dispensed with. He then declared the meeting adjourned, and the members passed around Professor Agassiz and offered congratulations and friendly greetings.—[*Bulletin.*

The California Academy of Sciences met September 9th, Professor Davidson presiding.

A collection of fossils from the John Day Miocene, Oregon, was presented by C. D. Voy.

A sensation was created by the visitation of Mr. Andrews, of Woodward's Gardens, who brought with him a bottle of—not flea powder—but flea seeds. It was a veritable curiosity, too good for the Gardens, and Mr. Andrews, who always knows just the right thing to do, brought it where it would be appreciated. His contribution consisted of what appeared to be bewitched mustard seed. The little particles kept jumping about like "all possessed." They were sent to him from Stockton, with no other description than—"I call them flea seeds."

The members of the Academy were all nonplused at the strange sight. They have been in the city since last Saturday, and are just as lively as when they came. Upon examination, it was evident that each little seed-like particle contained a small worm, but what the shell consisted of was the mystery. They may be little cocoons, or they may be seeds, into which the egg of some insect has been deposited and hatched. The great mystery is, how do they hop about so from internal motion alone?

Dr. Gibbons exhibited specimens of last year's apples, dried somewhat, but in good condition, picked from last year's crop. They had been preserved in a box exposed to the air.

Professor Davidson made some very instructive and important statements regarding the establishment of the proposed Astronomical Observatory by the National Academy of Sciences, in some place west of the Mississippi Valley. Illustrative of the importance of this fact, he narrated some of his experiences in the Sierra Nevadas, where the higher the altitude the more perfect and frequent the opportunities for observation. He had been able to see with a small glass every night the companion

of *Philaris*, and to separate the rings around Saturn. He had nowhere else witnessed such clear and finely cut outline and delineation of surface on the moon. The sun also had been observed with remarkable accuracy. Further east, in the Rocky Mountains, he was fearful that atmospheric influences would prevent observation in many instances where in the Sierras they would be easily obtained. The new telescope, which will be one of the finest if not the finest in the world, is nearly finished at the factory in Cambridgeport, Massachusetts. It has a twenty-seven inch glass, and is expected to do greater work than ever was done by that of Lord Rosse.

Professor Davidson has reported in favor of the Sierra Nevadas for the site of the new observatory. His reports, it is hoped, will at least result in the inauguration of a scientific commission to examine into the wonderful atmospheric peculiarities of which Professor Davidson speaks.

A MUNIFICENT GIFT TO THE UNIVERSITY.

A meeting of the Board of Regents of the State University was held September 18th, 1872. Present—H. N. Bolander, A. S. Hallidie, Samuel Merritt, J. W. Dwinelle, Horatio Stebbins, J. W. Martin, J. Mora Moss, and Edward Tompkins.

The following communication was received from Edward Tompkins:

To the Regents of the University of California: The business between California and Asia is already very great. Its future is beyond any estimate that the most sanguine would now dare to make. The child is now born that will see the commerce of the Pacific greater than that of the Atlantic. It is carried on with people of whose languages we are wholly ignorant, and in all the vast transactions that it involves, we are dependent upon native interpreters, whose integrity will not become more reliable, as the magnitude of their temptations shall increase. It is, therefore, of the utmost consequence for California, that the means shall be provided to instruct our young men, preparing

for lives of business activity, in the languages and literature of Eastern Asia. It is the duty of the University to supply this want. It can only be done by a well organized Department of Oriental Languages and Literature, and every day that it is delayed is an injury to the State.

Fully believing that it is to become not only an important but a leading department of the new education that our peculiar circumstances demand, I have hoped that it might be my privilege to endow the first Professorship specially devoted to it. The wish has not brought with it the necessary means, and the money for the purpose is not within my control; but I have property that I can spare without wrong to any claim upon me; and rather than longer postpone an object that I deem so important, I venture to make you the following proposition:

I have prepared, and now offer for your acceptance, a deed of about forty-seven acres of land, with good title and free from incumbrance, at the junction of Broadway and University avenue, Oakland, upon the following terms and conditions:

You shall forthwith establish, and as soon as practicable fill, a Professorship of Oriental Language and Literature in the University of California, with the same salary as the other regular Professorships.

You shall take possession of the lands conveyed by me, and sell the same as rapidly as it can be done judiciously, until you have sold the whole, or enough thereof, to produce the sum of $50,000 in gold coin. All the money so realized shall be set apart as an endowment fund for said Professorship. It shall never be mixed with other funds of the University, or loaned in whole or in part to any other fund, or to the University itself, in any manner, or on any pretext whatever. It shall be kept invested in mortgage securities, upon unincumbered, productive real estate within the limits of the present County of Alameda. If the income shall exceed the salary of the Professor, the surplus shall be added to the principal, to provide, as far as possible, for the time when the rates of interest will be lower than they are now.

My consent in writing, or that of my legal representatives, if I shall not be living, shall be necessary to any sale of said land, or any part thereof, within five years from this date. After

that time, no such consent shall be necessary to any sale or sales not exceeding in the aggregate the sum of fifty thousand dollars.

Whenever said sum of fifty thousand dollars shall have been realized from said land, either in money or in obligations, or securities, and there shall remain any surplus, either of land, or money, or securities, such excess shall be conveyed or paid to me, my legal representatives or assigns, it being my intention to give for the endowment of said Professorship the sum of fifty thousand dollars, if said land shall produce that sum, and no more.

The salary of said Professor, until the same can be paid from the income of said endowment fund, and all expenses of the execution of this trust, or of the investment or reinvestment of the fund, shall be paid by the Regents, and no money thus paid, whether for salary or expenses, shall be deducted from said fund, or the subsequent income thereof, it being the intention hereof that neither said fund, or the current income thereof, shall ever be diminished by any claim for advances made on its account, on any pretext whatsoever.

If said Professorship shall not be kept up, or the conditions hereinbefore stated shall not be complied with, said land, or so much thereof as has not been sold, shall forthwith revert to me, my heirs, or assigns, and shall be conveyed or paid over by said Regents without delay.

As a recognition of the debt of humanity to the great and good man now honoring our State with his presence, said Professorship shall be known as the "Agassiz Professorship of Oriental Languages and Literature."

As the department thus organized will at first not be fully employed, I hope that it may be utilized for the education of such young men as may come here for that purpose from Asia, upon such terms and under such restrictions as the Regents may prescribe. As a lover of California, I feel deeply the humiliation of seeing them pass by us in almost daily procession to the other side of the continent in search of that "intellectual hospitality" that we are not yet enlightened enough to extend to them; and yet more that I cannot impose this as a condition of

this trust, without danger of injury to the great interests that I most earnestly desire to protect.

I repeat the expression of my regret that it is not in my power to simplify the trust by the direct payment of the necessary money. Desiring to place it beyond contingency by completing it during my own life, and to make such return as I am able for the kindness and prosperity by which I have been blessed in California, I have decided to postpone it no longer, but of such as I have of that I freely give. I humbly pray that in the coming time the Agassiz Professorship may be an instrument of great good to those for whose benefit it is designed.

EDWARD TOMPKINS.

OAKLAND, September 18th, 1872.

As a formal acceptance of this munificent gift, the following resolution, offered by Mr. Stebbins, was unanimously adopted:

Resolved, That the Regents accept the conveyance of land in Oakland, this day made to them by Edward Tompkins, upon the terms and conditions in the communication from said Edward Tompkins accompanying said deed, expressed, and that as evidence of such acceptance, the Secretary deliver to said Edward Tompkins a copy of such conditions, and of this resolution duly certified, and that he affix the corporate seal thereto.

The following resolution offered by Mr. Tompkins was adopted:

Resolved, That the Building Committee be and that they hereby are instructed to proceed with all reasonable expedition to perfect the plans and specifications for a building for the College of Letters, to be constructed of wood, and when the same shall be perfected and approved by this Board, to take the necessary measures to put the same under contract with as little delay as practicable.

On motion of Mr. Bolander, the Building Committee was authorized to have a greenhouse constructed at an expense not to exceed $500, and that the Professor of Agriculture be authorized to employ a gardener at a compensation not to exceed $100 per month.

Mr. Bolander also offered the following:

Resolved, That the President of the University be requested to confer with the President of the Mechanics' Institute, and

arrange for a course of lectures to be given the coming Winter in the City of San Francisco, and in connection with the Mechanics' Arts College.

Adopted.

The report on the Experimental Garden was accepted and placed on file.

Adjourned.

NATURAL SCIENCES—INDUSTRIAL EDUCATION.

GENEALOGY OF THE CALIFORNIA BIG TREES.—The American Association for the Advancement of Science held its twenty-first annual session at Dubuque, Iowa. Professor Asa Gray, the retiring President, delivered a noteworthy address on the *sequoia gigantea*, the "Big Trees" of California. Of those now in existence he said but little, contenting himself with disproving, in a few keen words, the popular fallacy that they are the oldest and tallest trees in the world. Certain Australian gum trees (*eucalypti*) are taller, and several groups of trees in different parts of the globe "may claim to be older." Professor Gray devoted himself to tracing the geneaology of these California forest kings. They exist only in that State. This can be explained on any one of three hypothesis: Either they are just coming into existence, and are destined, if unmolested by man, to spread over the world; or they have long lived on the Pacific slope and have never spread elsewhere, because no other climate is fit for them; or, finally, these living specimens are but the scanty survivors of a race that once crowded the hills and valleys of the world. The last hypothesis is the one the speaker defended. His argument may be med up as follows: At the beginning of the tertiary period the entire northern temperate zone was a region of perpetual Summer. Gradually glaciers rolled down from the north, driving all vegetation far to the south. Then a warmer climate came again, and freed the greater part of the northern hemisphere from its fetters of ice. As these melted away vegetation extended northward, but not to its former limits. These facts furnish a ready clue to the history of the "Big

Trees." If their ancestors were numbered by hundreds of thousands, their fossil remains must exist in the strata formed by the great ice-flood that swept over the northern half of the globe. Research has found the fossil *sequoia gigantea* throughout the miocene formations of northern Europe, and in those of Iceland, Spitzbergen, Greenland, Alaska, and the Rocky Mountains. All of these fossil specimens are almost exactly the same as the "Big Trees" of to-day. The very slight difference could be readily explained by the modifying force of different conditions. This crucial test shows that before man sprang from the dust in the Garden of Eden, according to Genesis, or was evolved from the ape of northern Africa, according to Darwin, the *sequoia gigantea* belted Northern America, Asia and Europe, and the islands of the northern seas. The "Big Trees" of California are but the outlying sentinels of an army that has vanished.—*Chicago Tribune.*

AN OPTICAL CURIOSITY.—Here is a simple little experiment by which we can prove the existence of a blind spot in our eyes. Shut your left eye, and with the right one look steadily at the cross just below, holding the paper ten or twelve inches from the eye.

X O

Now move the paper *slowly* toward the eye, which must be fixed on the cross. At a certain distance the other figure—the letter O—will suddenly disappear; but, if you bring the paper nearer, it will come again into view. You may not succeed in the experiment on the first trial, but with a little patience you can hardly fail; and the suddenness with which the black spot vanishes and reappears is verry striking. Now, examination has shown that when it disappears its immage falls exactly on the spot where the optic nerve enters the eye, thus proving that spot to be blind.

CLEANING SKELETONS.—The best way to get a small skeleton well cleaned is to bury the animal after taking off the skin, in an ant-hill.

DEPARTMENT OF PUBLIC INSTRUCTION.

The following opinion of the Attorney General decides the question whether the special school tax provided for by section ninety-nine of the California School Law, and section eighteen hundred and forty-six of the Political Code, can be levied under the provisions of the Revenue Law included in the various provisions of the Codes that take effect prior to January first, eighteen hundred and seventy-three:

OFFICE OF THE ATTORNEY GENERAL OF THE STATE OF CALIFORNIA,
SACRAMENTO, September 9th, 1872.

Hon. H. N. Bolander, Superintendent of Public Instruction:

DEAR SIR: In answer to the question asked by the County Superintendent of Inyo County, I have to say that it is the duty of the Board of Supervisors of each county to levy the special school tax authorized by section ninety-nine of the School Law. The time at which they shall levy the tax is prescribed by section three thousand seven hundred and fourteen of the Political Code, now in force, and is the first Monday in October. Yours, respectfully,

JOHN L. LOVE, Attorney General.

According to section twenty-nine of the California School Law, "in any case of alleged hardship, any head of a family, parent, or guardian, may make a statement of the facts to the Board of Supervisors, and if, in the judgment of the Board, good cause be shown for such transfer, he may be transferred to another district." The Board of Supervisors of Sacramento County, in accordance with the above quoted provision of section twenty-nine, transferred the heads of several families from the Freeport School District to the Union District. The question arose whether this action of the Board of Supervisors did not virtually change the boundaries of the districts, and entail a transfer of taxable property and census children. The Attorney General decides that the boundaries are not changed, but that the taxable property and census children are transferred.

OFFICE OF THE ATTORNEY GENERAL OF THE STATE OF CALIFORNIA,
SACRAMENTO, August 12th, 1872.

Hon. H. N. Bolander, Superintendent of Public Instruction:

DEAR SIR: In answer to the communication of Superintendent Jackman, I think that the action of the Board of Supervisors in transferring the three inhabitants of Freeport School District to the Union District, did not change the boundaries of either district, but simply gave the persons named the right to send their children to school in the district to which they were transferred. I think the taxable property and the children of the persons transferred belong to the district to which they were ordered transferred. Such a disposition seems to me to be just.

Respectfully yours, JOHN L. LOVE, Attorney General.

The August apportionment of State school moneys (see September number of TEACHER) was based upon the school census returns of the school year ending June thirtieth, eighteen hundred and seventy-one, and not upon the returns of eighteen

hundred and seventy-two. The latter returns ought to have been the basis of apportionment, according to section ninety-four of the California School Law. But section five of the law provides that the Superintendent of Public Instruction shall apportion the State school moneys *immediately* after the State Controller has reported to him the moneys in the State Treasury belonging to the School Fund, and subject to apportionment. The State Controller must report on or before the first day of August of each year. (Section eleven of the School Law.) It is plain, therefore, that the abovementioned apportionment of State school moneys had to be made *immediately* after the first day of August. At that time the school census returns of the school year ending June thirtieth, eighteen hundred and seventy-one, were the latest returns on file in the State Superintendent's office. The school census returns for the school year ending June thirtieth, eighteen hundred and seventy-two, were not due at this office until August twentieth, eighteen hundred and seventy-two, and are not all received at the present time of writing, and cannot be checked, corrected and compiled for use before October, if then.

In this connection we call the attention of County Superintendents to section sixteen, subdivision three, and section seventeen of the California School Law. Next year the State Superintendent will be compelled to strictly enforce the provisions of these sections, or rather the provisions of sections 1543 and 1544 of the Political Code, which will then be in force. The Political Code makes it obligatory upon the County Superintendent, under the penalty of forfeiting one hundred dollars of his salary, to make reports *whenever directed by the Superintendent of Public Instruction.* Section three hundred and thirty-two of the Political Code provides that "all officers * * * required by law to make reports to the Governor or Legislature, must send such reports to the Governor before the *first day of August,* in the year eighteen hundred and seventy-three, and in every second year thereafter." Next year it will, therefore, be the duty of the State Superintendent to direct County Superintendents to report before the time at present fixed by law.

The dilatoriness of census marshals, trustees and teachers to report at the proper time is offered by quite a number of County Superintendents as a valid excuse for not reporting at the time required by law. As far as trustees' reports are concerned, this might be considered a valid excuse, if County Superintendents could not collate from other sources the data which trustees' reports are presumed to furnish. Trustees' reports ought to exhibit the financial condition of their respective districts; but as far as our experience serves us, in the majority of cases such financial exhibit is anything but correct, and seldom corresponds with the County Superintendent's books. The County Superintendent ought to be able, at the close of each school year, to collate from his own books the financial statistics of each district, excepting, perhaps, the value of school property, and the amounts raised by rate bills, subscription, or from other sources. The County Superintendent generally knows which districts avail themselves of these means of raisiug school revenue, and he can, before the close of the school year, ascertain the amount so raised. But even without this, County Superintendents can, generally speaking, make up the financial statistics of each district without having seen a single trustees' report. In most cases it is advisable for County Superintendents to take their own accounts—which are checked by the County Treasurer's books—and not waste time in the almost useless task of trying to correct trustees' reports. At some future time we shall

resume the subject of trustees' reports. As far as census marshals' and teachers' reports are concerned, the law has conferred enough authority—even punitive authority—upon the County Superintendent to exact correct reports at the time specified by law. If he fails to avail himself of this authority, he must blame no one but himself if, at the time of making out his report, he finds that all the census marshals or teachers have not reported, or have sent in incorrect reports.

THE Teachers' Institute for Monterey County convened September 16th, 1872. At the present time of writing no minutes of the proceedings have come to hand. A severe attack of cholera morbus prevented the State Superintendent from attending the Institute. Professor Carr, of the State University, who intended to lecture to the Institute, was taken ill on his way to Monterey, and was obliged to return to his home.

THE Teachers' Institute of Santa Cruz County will convene at Santa Cruz, October 8th, 1872; the Institute of Contra Costa County will convene at Pacheco, October 1st, 1872; the Institute of Stanislaus will convene at Modesto, October 8th, 1872.

Certificates for the following named persons remain uncalled for in the office of the State Superintendent of Public Instruction:

EDUCATIONAL DIPLOMAS.—Miss Mary R. Culbertson, Miss Sarah E. Frissell, Abbie F. Aldrich.

SECOND GRADE STATE CERTIFICATES.—Miss Fannie Savage, Miss Lucy C. McNear, T. E. Kennedy.

THIRD GRADE STATE CERTIFICATES.—Miss Ida M. Kervan, Miss Lizzie M. Brooks, Miss Nellie F. McFarland, Miss Addie E. Aiken, Jessie Forsythe, Miss Sarah R. Avery, Miss Annie M. O'Brien, Miss Ettie S. Thompson, Miss Addie E. Rogers, Miss Esther Levy, Miss Louisa M. Coffin, Miss Alice Hall, Miss Mary C. Fitch, Miss Mary C. Hall, Edith Rivers, Mary F. Teague.

LIFE DIPLOMAS.—George C. Mack, M. B. Potter, Frances A. Woodruff.

EDUCATIONAL ITEMS.

NATIONAL UNIVERSITY.—Near the close of the last session of Congress, a bill to establish a National University was introduced into the Senate by Mr. Sawyer, and referred to the Committee on Education and Labor. The object of the bill, as stated in the preamble, is to found a "university so comprehensive in plan as to include every department of learning; so high as to embrace the limits of human knowledge; so national in aim as to promote concord among the people of all sections, and so related to other institutions as to promote their efficiency, and with them form a complete system of American education." The bill was proposed by Dr. J. W. Hoyt, of Wisconsin, Chairman of the Committee on a National University, appointed by the National Educational Association at the meeting held in St. Louis. It is the result

of a most thorough examination of the subject in all its bearings, and of a careful comparison of the views and suggestions of the members of the Committee and many other competent persons, to whom the original draft of the bill was submitted for criticism. The provisions for the organization and management of the University effectually protect it from political or sectarian influence and control, and no party or administration will be able to "run" it. Thus the chief objection to the founding of such an institution by Congress is obviated. The initial endowment is an appropriation by Congress of twenty million dollars, in the form of a perpetual registered certificate of the United States, bearing five per cent. interest, to be paid quarterly on the order of the Board of Regents. It is also provided that chairs or faculties in any department of learning, or in support of any principle of truth, may be endowed by gift, decree, or bequest; and the parties endowing the same shall have the privilege, subject to the approval of the Board of Regents and Council of Education, to determine the character of the instruction, and the person by whom such instruction shall be given. The sum necessary to endow a chair is fixed at $100,000. It is expected that this provision will secure an adequate and increasing endowment. The bill provides for the organization of twenty-two faculties, and others may be added. We trust that this great measure will have the hearty support of all friends of high education. The institution is designed to supplement and crown our present collegiate system.—*National Teacher.*

MIAMI (OHIO) UNIVERSITY has changed its system of instruction, adopting that of the University of Virginia. The different departments of knowledge are taught in separate schools, and the instruction is given in the form of lectures, with reviews and examinations. The assignment of lessons in text books and the conducting of recitations are both abandoned. Students have their choice of studies.

DR. CALVIN CUTTER, author of the well known series of text books in Physiology, died at his residence in Warren, Mass., June 20th, 1872.

EDUCATION AMONG THE INDIANS.—The population of the Choctaw Nation is between sixteen and seventeen thousand. They have forty-eight public schools, and will soon have two boarding schools, one for each sex. They have twenty youths at school in the States. Whole number of children attending school, 1400. Annual school fund, $30,000. The population of the Cherokee Nation is 17,500, and the annual school fund is about $50,000. This nation has forty-eight schools, six of which are for colored children exclusively. The orphans of the nation are boarded and clothed by the interest in the orphan fund. There is one mission school conducted by Moravians, and several private schools. The population of the Creeks is 13,000. They have twenty-two public schools, and will soon have nine more, under the management of the Superintendent of Public Instruction. They have one boarding school, and another nearly completed, each accommodating eighty pupils. The superintendents of these schools are paid by the Methodists and Presbyterians, and all expenses are paid by the nation.

RESULT OF EDUCATION AMONG THE INDIANS.—The Cherokee *Advocate* says: "A trip to a neighborhood of Going Snake District, which has been blessed with a public school for a number of years, before and since the war, has given us proofs of the benefits of public schools among a class of our people least thought to be benefited by

them. Entering a company of young men, whose tall form and dark color told of pure blood, we were astonished to hear English spoken with a purity and correctness as well as simplicity, which has been unusual in our experience among young people any where. There was a total absence of slang phrases, too, which so often spoils the conversation of young men, even when educated.

AN INDUSTRIAL INSTITUTE FOR CHILDREN.—A short time ago one of the prominent citizens of Boston conceived the idea of establishing an industrial and mechanical institute in that city in which boys and girls may learn a trade which shall be of service to them. A large building has already been secured, and one mechanical branch —shoemaking—begun. At a recent meeting intended to place the claims of the institute before the public, the Hon. Josiah Quincy said: "Our schools are looked upon as model institutions; but there are great deficiencies in them. Music and drawing do not serve thoroughly to fit for life those who are to make our households cheerful and happy. The necessity of skilled labor cannot be exaggerated. He believes this school to be the only one of its kind in the country. It was small now, but it might be like the grain of mustard-seed, and grow up a plant which should overshadow the land."

SOUTH AMERICA.—A law for compulsory attendance of children from seven to fourteen, has been enacted for the province of Rio Janeiro, in Brazil. The President of Ecuador recommends free but compulsory instruction. Chili has 676 common schools, with 370,129 pupils. Corporal punishment is not allowed. In Buenos Ayres there are 60,000 Italians, forming, if we are not mistaken, the majority of the population. The number of French, however, are not inconsiderable. Add to them the Spanish of the Argentine Republic, the Portugese of Brazil, and the German colonists in Rio Grande do Sal, and Dutch and English in Guiana, and we have a little Europe in the great continent of South America. The Spanish Academy at Madrid has invited the Spanish-American men of letters to coöperate in a movement to give unity and stability to their common tongue. A perfect Babel of idioms in the republics of South America renders such a task eminently necessary.

BOOK NOTICES.

EATON'S MATHEMATICAL SERIES. Boston: Thompson, Bigelow & Brown. 1872.

The new edition of this well-known series appears in nine numbers: *Primary Arithmetic, Intellectual Arithmetic, Elements of Arithmetic, Common School Arithmetic, High School Arithmetic, Bradbury's Eaton's Elementary Algebra*, and *Bradbury's Elementary Geometry and Trigonometry*. The Arithmetics have been too recently used in the schools of California to need any extended criticism from us. With the Elementary Algebra we are well pleased; the range and method of the work make it one of the best text-books with which we are acquainted. But we cannot as heartily commend the Elementary Geometry. A large number of theorems have been omitted, simply because these theorems are not strictly necessary to the demonstration of the last theorem of Plane Geometry, namely, the theorem in relation to

the volume of a sphere. The attempt to compress Geometry into "a single theorem, without an unnecessary link in the chain of reasoning," narrows materially the educational value of the study, and increases greatly the difficulties of teaching it in public schools. The truth of this is indirectly acknowledged by the author; for, in the preface, he says that "as those who have not had experience in discovering methods of demonstration have but little real acquaintance with Geometry, there have been added to each book, for those who have the time and ability, theorems for original demonstration. These Exercises, with different methods of proving propositions already demonstrated, include those that are usually inserted, but whose demonstration in this work has been omitted." In other words, the essential theorems of Geometry must first be taught, and then, at the option of the teacher, and if time permit, may be extended to pupils the aid necessary to acquire a real acquaintance with Geometry. Further comment is unnecessary.

ELEMENTS OF PHYSIOLOGY AND HYGIENE. By R. T. Brown, M. D., Chemist-in-Chief, Department of Agriculture, Washington, D. C. Cincinnati: Wilson, Hinkle & Co.

This book was prepared in response to a resolution of the Indiana State Teachers' Association, and is designed to meet the wants of common schools. In limiting itself to Physiology and Hygiene chiefly, only so much of descriptive anatomy being introduced as will enable the student to understand the functions of the several organs described, this book circumscribes all what our common schools ought to attempt to teach of these subjects. But in arranging this material the book is deficient in method, simply because it adheres to the time-honored method of treating first of the "Organic or Vegetative Functions," or the functions concerned in the maintenance and extension of the body; then of the "Animal Functions," or the functions concerned in locomotion, sensation and intelligence; and so on to the end. Now under the functions of an organ are included generally a great variety of actions, resulting from the concurrent exercise of the powers of the several component parts of the organ. It must seem reasonable, then, that the structural characteristics of an organ ought to be studied before the functional powers of the organ are considered. Moreover, structures are not only significant as component parts of organs, but they have a Physiology and Hygiene of their own, a knowledge of which is even of more primary importance than a knowledge of the Physiology and Hygiene of the different organs.

The book might have been improved by the omission of the first two lessons treating of the Classification of Bodies and Animals. These lessons on classification can be of no significance to children. Some very curious definitions have here crept in: *e. g.*, *mollusks* are "soft-bodied animals without limbs, such as snails, oysters, clams, etc.; *radiates* are animals furnished with "arms or feelers extending in every direction, like rays, from the mouth, which is simply an opening into the central, digestive cavity."

On the whole, however, this book is by far the best text-book on Physiology we have seen, and we commend it most heartily to teachers and parents.

It is printed in large, clear type, on delicately tinted paper. Some of the wood-cuts might be improved.

THE TEACHERS' MANUAL. By Hiram Orcutt. Boston: Thompson, Bigelow & Brown.

This little book furnishes the teacher with practical suggestions upon every topic

that will be likely to occupy his attention. All the disciplining agencies to be employed in successful government and instruction are fully and carefully discussed. The following extract will show the spirit and scope of the work:

"And why does not the study of spelling and grammar qualify our children to apply these simple principles in the use of written language? Because each department is learned as an abstraction and as a task, and is only partially learned at all.

"Oral spelling of columns of unmeaning words, as found in the spelling-book, the study of capitals and punctuation in fine print, and daily recitations of the formal rules of grammar do not *educate;* such instruction fills the mind with *trash*, but imparts no *practical* knowledge.

"Correct instruction in these different departments will qualify the scholar to compose and write correctly. As it is, he spends his school life in studying grammar, and the remainder of his days in speaking and writing *false* syntax; is sure to violate every rule and principle which he has learned.

"Correct spelling on paper alone can make good spellers; the *practice* of speaking and writing *correctly* is necessary to become a good grammarian. Hence, the teacher should insist upon accuracy and propriety in the use of language in the recitation and in the common intercourse of the school, and seek practical results in the study of every principle and rule in the language."

HOW PLANTS BEHAVE. By Asa Gray. New York: Ivison, Blakeman, Taylor & Co. San Francisco: A. Roman & Co.

Dr. Asa Gray is no more distinguished for his numerous contributions to the higher departments of the science of botany, than for his successful labors in popularizing the science. Of his numerous botanical text-books, the most charming works are "How Plants Grow" and "How Plants Behave." "How Plants Grow" presents some of the most abstruse points in structural botany with such a "matter-of-fact simplicity" that children are charmed as with a tale. "How Plants Behave," tells us how they move, climb, employ insects to work for them, etc. The novelty of the subjects presented will be highly interesting to children, and may profit even older heads.

SCRIBNER'S FOR SEPTEMBER. A lively illustrated paper, by Edward King, "In and About Paris," opens the September number of SCRIBNER'S. There is also a capital article on Sculpture, by an accomplished critic, with numerous illustrations; and a pictorial account of the "Ascent of Gray's Peak" by a party of ladies and gentlemen. The most important article of the number, however, is Mr. Mulford's essay on the late Frederick Denison Maurice, one of the greatest thinkers and preachers of modern times, among whose disciples were John Sterling, Alfred Tennyson, George MacDonald, and Thomas Hughes. Miss Fannie E. Hodgson, author of the genuinely pathetic story of "Surly Tim's Trouble," in the June number of SCRIBNER'S, contributes another story of much power, entitled "One Day at Arle." Miss Adeline Trafton tells a seaside story of characteristic strength, "After the Darkness, Light," and Hiram Rich is pleasantly suggestive in his seasonable sketch of "Vater's Vacation;" while Mrs. Oliphant's masterly novel, "At His Gates," moves steadily on. Then we have an interesting account of the "English Singing Birds in Florence" in 1855—the Brownings, Frederick Tennyson, the Trollopes, and Lever, the novelist. Charlotte L. Forten tells of "A Visit to the Birthplace of Whittier." For poetry we have "A Ballad of the Gold Country," by H. H., with verses by Miss Kate Putnam Osgood and Mrs. Ritter. Dr. Holland, in Topics of the Time, treats of "The Bane of the Republic," namely, office-seeking, "The Matter of Size." "Modern Preaching," and "Prizes for Suicide." The Old Cabinet contains "Bulrushes," "The Little Crowned Salamanders," "Tests," "A Canon of Criticism," and "Let us have Faith." Nature and Science has brief papers on the Spectrum, the Color of the Sea, Sewage as a Cement, etc.; Home and Society, "Summer Travel," "The Boy," "A Fernery," "For the Frugal," and "Laces." In Culture and Progress there is a brief essay on modern acting, besides the usual book notices. The etchings this month are particularly good—Miss Osgood and Mr. English being the contributors.

THE following books have been received too late for notice this month:

FIRST BOOK ON ANALYTIC ANATOMY, PHYSIOLOGY AND HYGIENE, HUMAN AND COMPARATIVE. For Common and Grammar Schools, and for Families. By Calvin Cutter, A. M., M. D. For sale by A. Roman & Co., San Francisco.

TEXT-BOOK OF GEOLOGY FOR SCHOOLS AND COLLEGES. By H. Alleyne Nicholson. New York: D. Appleton & Co. 1872.

HUMAN ANATOMY, PHYSIOLOGY AND HYGIENE. A Text-Book for Schools, Academies, Colleges, and Families. By Joseph C. Martindale, M. D. Philadelphia: Eldridge & Brother. 1872.

MARTINDALE'S FIRST LESSONS IN NATURAL PHILOSOPHY. Philadelphia: Eldridge & Brother. 1872.

A BRIEF ENGLISH GRAMMAR ON A LOGICAL METHOD. By Alexander Bain, LL. D. New York: Holt & Williams. 1872. San Francisco: Payot, Upham & Co.

KEY TO A BRIEF ENGLISH GRAMMAR ON A LOGICAL METHOD. By Alexander Bain, LL. D. New York: Holt & Williams.

TITI LIVI HISTORIAM; I, XXI, XXII. C. & S. The Histories of Livy, Books I, XXI, and XXII, with extracts from Books IX, XXVI, XXXV, XXXIX, XLV. Edited and Annotated by Thomas Chase, M. A. Philadelphia: Eldridge & Brother. 1872.

THE ECLOGUES, GEORGICS, AND MORETUM OF VIRGIL; with Explanatory Notes, and a Lexicon. By George Stuart, A. M. Philadelphia: Eldridge & Brother. 1872. For sale by Payot, Upham & Co., San Francisco.

NEW PRACTICAL ARITHMETIC FOR GRAMMAR DEPARTMENT. By James B. Thomson, LL. D. New York: Clark & Maynard. 1873.

NEW MENTAL ARITHMETIC FOR PRIMARY DEPARTMENTS. By James B. Thomson, LL. D. New York: Clark & Maynard. 1873.

NEW RUDIMENTS OF ARITHMETIC: Combining Mental and Slate Exercises for Intermediate Departments. By James B. Thomson, LL. D. New York: Clark & Maynard. 1873.

INTRODUCTION TO ANALYSIS AND PARSING. By G. E. Lighthall. San Jose: A. Waldteufel.

A SMALLER SCHOOL HISTORY OF THE UNITED STATES. By David B. Scott. New York: Harper & Bros. San Francisco: A. Roman & Co.

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THE

CALIFORNIA TEACHER.

DECEMBER, 1872.

VOL. X. SACRAMENTO. No. 6.

THE EXAMINATION OF TEACHERS.

[*Read before the National Educational Association, in Boston, August* 8, 1872, *by John Swett.*]

IT may reasonably be expected, when a man accepts an invitation to prepare a paper for this Association, and travels three thousand miles to read it, that he will condense his thoughts, in the best possible manner, into the fewest possible words.

I am not in the habit of making excuses, but the circumstances under which I appear here to-day require a few words of explanation. During the last of June, just as I was beginning to turn my thoughts to the subject assigned to me by President White, my youngest boy was taken suddenly and dangerously ill. For a long and weary month, every hour of the day that I could spare from the pressure of official duties consequent upon the annual examination of the schools at the end of the school year, and every hour that I could subtract from sleep, was passed in watching over him. For thirty days and thirty nights of alternating hope and despair, as the disease ebbed and flowed, I saw the little life, so dear to us, drifting slowly and helplessly away into the unknown future; and now a little grave, in Lone Mountain, has consecrated the soil of my adopted State to me forevermore.

Two days before I left home, prostrated both physically and mentally, I felt that I must take, as a sad necessity, the trip to which I had looked forward with so many pleasant expectations. My noble wife, herself almost broken hearted, said: "Go, rather than break your appointment." If, in the shadow of a great grief I fail to do justice to my subject, I venture to hope that your sympathy may veil the eyes of criticism. On the long overland journey I jotted down a few rough outlines on my subject, without making any attempt to prepare an elaborate paper. The subject is one that I have had to deal with practically for many years, and one on which I entertain some very definite notions.

There are no flowers on the alkaline plains of the great plateau through which the railroad winds like a huge black serpent writhing under the scorching sun in the hot sands of the barren desert, and any attempt of mine at rhetoric degenerated at once into the driest statements made up of disjointed sentences that break off as abruptly as a train fetches up at a way-station. Should there be anything caustic in my remarks it may be attributed to alkaline dust; and if I fail to decipher my manuscript, penciled on a jarring railroad train, you will bear in mind that it seemed to me, this morning when I ran it over, as if it must have been struck by lightning in the terrible thunder storm we experienced in the valley of the Platte.

By way of introducing my subject, and for the purpose of showing why I entertain radical views on the common methods of examining teachers and of granting them certificates, I am constrained to offer my own experience as an illustration.

Twenty years ago this very month, moved by the migratory instinct that seems to be hereditary in so many Yankee boys, impelling them to take flight in search of warmer climes and richer feeding-grounds, I sailed out of Boston harbor bound for California "round the Horn."

My pocket-book was not plethoric with money, but carefully stowed away in its ample folds there were three certificates, every one of which bore the most positive evidence as to my good moral character, and certified to my "ability and fitness to teach a common school for the term of one year."

One of these, like its holder, had its birth in the old Granite

State. It bore the signature of a "*Deestrict* School Trustee," dear old Deacon Brown, who examined me in the vowel sounds, the consonant sounds, asked me to pronounce *g-e-w-g-a w*, and by way of a clincher required me to define the four parts of English Grammar according to Lindley Murray, *to wit:* Orthography, Etymology, Syntax, and Prosody.

The other two certificates were dated in the town of *Timbuctoo*, in the old Bay State, almost in the shadow of Bunker Hill. I was examined in the dingy office of a cobwebbed old lawyer, who was quite as scientific in his style of doing things as was dear old deacon Brown.

It is enough to say that every one of these examinations was as great a farce as it would be for Vincent Collyer to examine an Apache Indian in mental and moral philosophy and theology, or rather, as great an absurdity as it would be for a green grocer to examine John Stuart Mill in political economy.

I would not rake up old events that happened so near the cradle of the common school system, except that on returning after a quarter of a century, I find that good old way of examining teachers still going on in my native State and in some other States that I do not now care to mention.

I find that the largest city in New England, famed for the excellence of its schools, has *no* system of professional examinations for teachers; that in Utopia the fitness of a man to teach is found but by "intuitive perception," and that men and women who want to teach get their places, not by rank in competitive examinations, but like office-hunting politicians, by "letters of recommendation," by influential relatives, or by austere manners, or by the eminent respectability of dress.

When I reached California I mined until I found myself *dead broke;* worked as a day-laborer on a *ranch*, sought in vain for employment, save only the profession of blacking boots, and at the end of a year looked sadly at my certificates, and as a last, desperate resort, looked round for a school.

I heard of a school, but my old certificates were not current in California, and the flattering letters of Prof. Russell, who taught me how to teach, availed me nothing. I had to be "examined" before I could be patented as "fit to teach a common school in the State of California for one year," and a miserable little school of half Spanish children at that.

The school trustee, a Yankee minister, a man of huge body and enormous pomposity, did his duty with an awful dignity which nobody but a little-minded man in a petty little office can ever aspire to.

It was the same old rigmarole of *reedin,' 'ritin,'* and *'rithmetic*, with never a question to test education, culture, or power to teach. After a half day's examination he gave me a certificate, and the school to somebody else.

Then I went to San Francisco. There was a vacancy in the school department. The old examination mill was still running under Yankee management.

Fifteen of us, all in a row like good little boys in school, were questioned "once round" in spelling, "once round" in reading, "once round" in arithmetic, and "once round" in geography, by the Superintendent and the Mayor—the former a Vermont Yankee, and the latter like unto him, except he hailed from a city nigh unto Boston, where they gibbeted witches instead of teachers. I was told that I ranked first of the batch, and of course somebody else who had "influence with the Board" got the place. The successful somebody this time was a young doctor without patients. Pretty soon the "big boys" "thrashed" the doctor, and I was allowed the privilege, at one hundred and twenty-five dollars a month, of conquering a peace by subduing the young hoodlums, or of meeting the fate of my predecessor. This was how I became a schoolmaster, and how I won my way into the noblest profession—I think that is what they call it sometimes in educational conventions.

For eight successive years I taught the same school, and—I am ashamed to own it, and would not tell it were it not necessary to illustrate what I intend to present—I had the cowardice, like other teachers with me, to submit to eight annual examinations in order to determine my fitness, at each annual revolution of the sun, to teach the same school each succeeding school year.

Nor was this the end of humiliation and insult. After getting a "bran new" certificate at the end of each year, before I could go on again, I had to be elected by the votes of twelve members of the Board of Education, because my term of office lasted only one year. During all those memorable years the

talent that I displayed in "electioneering" would have raised me to eminence as a New York ward-politician, had the same amount of anxiety and hard work been turned in that direction.

This annual election system was handed down to us from the primitive New England "town meetings." I believe that here in Boston, in all New England cities and villages, and in fact in most parts of the United States it is still kept up.

A teacher holds his office only one year, and then he is at the mercy of the whim of any school director or local member of the Board, who may have some spite to wreak or some relative to put in. Much as I honor the occupation of teaching I am not in love with a system that tends to take all the manliness out of a man and all independence from woman. Under such a barbarous system of office-holding, rather than have a son of mine become a common school teacher, I would apprentice him to the trade of a tanner, a tailor, or a shoemaker. He might then stand some possible chance of rising in the political world. For myself, rather than again teach under it, I would contest with Nasby the postmastership of the Confederate Cross Roads.

At length, dragged out of my bed after a typhoid fever that brought me to the verge of the grave—a sickness brought on by overwork, worry, and anxiety—in order to be run through the examination mill a *ninth* time, the hereditary blood of my grandfather, who "fit" in the revolution, rose up in rebellion. I vowed to break up and root out the annual examination farce and the New England town meeting annual election humbug, both of which had followed me across the continent, like the ghost of some grim old Puritan, sticking closer than the accent of Yankee-land in my mother tongue.

So I left the school room, went into political conventions, secured a nomination for the only office ever open to a schoolmaster, that of State Superintendent of Public Instruction, stumped the State, won two successive elections, and the third time, with my whole party, won a defeat; framed a school law; established free schools; lobbied Legislatures; secured a legal recognition of professional teachers; abolished the New England annual examination farce, and in San Francisco finally aided to break up the annual rotation-in-office election system; placed the examination of teachers throughout the State exclu-

sively in the hands of experienced teachers, thereby ruining the occupation and the glory of many a learned committee-man; secured life diplomas for experienced and capable teachers; gained a legal recognition of the Normal School diplomas of all State Normal Schools, and by law made valid in California the life diplomas and State certificates granted to teachers in other States.

All these reforms cost me years of hard work and determined effort, and you will understand why I entertain strong convictions on the subject of teachers' certicates. For nearly twenty years, on the western verge of the continent, I have been engaged in a kind of border warfare in education.

My educational notions have changed since I taught school near Boston. Living in a State whose people have been gleaned from every other State in the Union, from France, Germany, Italy, England, Ireland, Australia, and China, new conditions have made new questions to be decided and new issues to be met.

While I fully recognize all that is good in the New England schools, and school laws, and school customs and usages, I take satisfaction for past sufferings by hurling a few brickbats into the windows of the old school house where I was flogged.

I have no desire to ruffle the plumes of the educational Brahmins of Boston, but backwoodsmen fall into a rough way—to use the Yankee vernacular—"of speakin' right out in meetin'." If Boston puritans imagine Europe to be an outlying attachment of the Hub, the Occidental Cosmopolitans, with equal sublimity of self-assurance, are certain that China, Japan, and the Indies are remote provinces of San Francisco. Some of our Pacific people claim that the east winds of Boston are not so raw as those of San Francisco. There are people near the Golden Gate who are quite as confident "that our schools are the finest in the world, sir," as are the lineal descendants of the first Boston master of a grammar school. There are, possibly, a few intermediate points between the two "l's," as for instance St. Louis, Chicago, Cincinnati, New York, Philadelphia, and Baltimore, where persons can be found laboring under the same pleasing provincial self-delusion.

Before touching on the subject of professional certificates, the two weak points of our public school system must be taken into account.

1. Of the three hundred thousand persons that "keep school" in our country, not more than one tenth can be regarded as professional teachers, that is, teachers trained to their business and intending to pursue it for a term of years. From the various Normal schools altogether there are graduated annually not more than two thousand, at a very liberal estimate; and of these at least one half drop out of the occupation in five years. Most of our schools *outside* of our large cities, and many of the lower classes *within* our cities, are *kept*, not taught, by unskilled and untrained labor, at the wages of unskilled labor. The pay of these unskilled "school-keepers" is less than that of any class of artisans or mechanics in any occupation that requires a trained apprenticeship.

These raw "school-keepers" are quite as good as the people deserve, and in most cases better than they ought to get for the wages paid. Until the people recognize the necessity of schools all the year round, until they realize that teaching is an art, until they are willing to pay for skillful training instead of mere school-keeping, the broken Summer and Winter schools kept by young girls waiting to get married, and by boys working their way through college, or into other occupations and professions, or by migratory Ichabod Crones, must serve the purpose of keeping the children out of utter barbarism by giving them a chance to learn to read and write and to reckon dollars and cents.

The abstract theory of our free school system is fine enough, but the census statistics loom up in fearful significance as a dark back-ground. We shall learn before long that mere reading and writing do not constitute education, and that schoolmasters and schoolma'ms are not necessarily teachers.

It is a quarter of a century since I went to a country school in my native village. I return and find the school no better than when I was a school-boy. That village school is a fair type of many schools all over our country. It will not do to pick out a few cities and shut our eyes to the rural districts.

When I went to school we boys and girls had neither training nor culture. We learned to read and write and cypher, and memorized text-books, but we were not educated; and hundreds

of thousands of boys and girls all over our country are doing the same thing at the present time.

It matters but little how the temporary keepers of schools of this type are examined. Still, there ought to be some plan devised by which the untutored, untrained, and unskilled "school-keeper" shall not be placed on the same footing and paid the same wages as the accomplished graduate of a normal school, or the self-made teacher trained in the actual work of the school room. Schools of this class were well enough in the ruder years of the Republic, when men and women were subduing the wilderness, driving out the savages, and laying the rough foundations of a great nation. But the time is now rapidly coming when in consequence of a denser population, the struggle for existence will become fiercer; when there will no longer be millions of acres of fertile land to be taken up at nominal prices and made productive by unskilled labor. The time is coming when our artisans and mechanics must be trained to compete with those from the technical and industrial schools of European countries.

Our schools in the small villages and the farming districts must be organized to meet this new order of things, and the people must employ skilled teachers and pay them the wages of skilled labor.

2. The other radical defect in the practical working of our school system is the short terms of school officers and superintendents, and their election by direct vote of the people in general elections.

Annual elections suited the genius of New England towns, when the Government was the purest type of a democracy, and when the machinery of great political parties was unknown; but applied to great cities, to States, and to the broader expanse of the West, the short term of office and the annual election have been ruinous in their results, not only in educational offices but in all others.

There can be no steady progress in public schools without long continued systematic efforts, and there can be no *system* when one set of school officials succeeds another as often as the seasons change. When one set of school officers has learned something about the condition and wants of the schools, by some

change in the politics of the city or town, a new set succeeds, bent on reforming the work of their predecessors.

In many parts of our country already, School Boards elected by one political party feel under no obligation to retain in place the teachers appointed by the opposite party, and the outrageous annual election farce, which cowardly teachers have so long submitted to without a struggle, affords a fine opportunity to "drop out" the old ones and run in the new.

Gradually, but surely, the schools are coming to be considered as legitimate party spoils of the victors, and the struggle for positions on Boards of Education in all our great cities is mainly to control the "patronage of appointments."

There has been a great deal of talk about reform in civil service appointments, but the country stands in greater need of reform in the manner of making educational appointments. There is more favoritism, more of politics and church mixed up in the annual appointments of the three hundred thousand teachers in the country than in all the custom house appointments, and there is more ignorance and unfitness for position than in all the post offices and civil service places taken together.

I make no random assertions. I speak from a thorough personal knowledge of one State, and teachers and educators from other States affirm the same condition of things with them. It is undoubtedly worse in the newer States than in the older, and worse in the States evenly balanced and subject to frequent political changes than in the one-sided States always controlled by the same political party. Right here in Boston, the center of conservatism, there is little change, because for twenty-five years there has been no change in the political character of a majority of the Board of Education.

But, each succeeding year, every one of the thousand teachers here feels that it is possible for one single enemy on the Board to secure, by persistent misrepresentation and by trading votes, the removal of any teacher. Occasionally, even in Utopia, it happens that a teacher is "left out," and consequently no teacher can act or can think independently; and it is even whispered that it makes a material difference with a man's chances whether he be a believer in Colten Mather or in Darwin.

If the Boston Brahmins like this condition of petty servitude

to school directors, I am perfectly willing they shall fold their arms with all due meekness and gratitude, leaving the rough work of reformation to outside barbarians. They get better salaries than we do out West, and consequeutly are conservative.

Until there is a reform in these defective points of our school system, it seems to me there can be no marked and permanent improvement in our public schools as a whole. There will be individual schools that, under superior teachers, will attain a high degree of excellence; but the general average of the schools cannot be raised much higher than it is, because the system neither encourages independent thought nor tolerates progress.

Puttering in conventions over the little details of teaching arithmetic, grammar, and geography, will avail nothing. Men are wanted to shape legislation, to dig out the *debris*, and, with strong and rough hands, to lay the superstructure of a better system of American school supervision and school teaching.

There are some men and women engaged in public school service who make teaching a life-work; who understand their business, and who are earnestly devoted to their work; and the rights and privileges of this class demand a careful consideration.

There are only a few States that have any system of professional examinations by means of which a public school teacher can secure a professional life-diploma, and thereafter be exempted from the humiliation of periodic examinations by petty school officials, just emerging from the babyhood of official ignorance of the whole subject of education. And even if a life certificate can be secured, as in a few States such as Illinois, Ohio, Iowa, or California, it is of no legal value outside of the particular State in which it is granted. California is the only State that recognizes by law the State diplomas and certificates of other States, by placing them on an equal footing with her own. Were I, after twenty years of continuous educational service as a teacher, as State Superintendent, and as Deputy City Superintendent of San Francisco, holding in my possession dozens of defunct certificates and a life diploma of the State of California; were I to go back to my native town and seek employment in my native State, by teaching the litfle "deestrict school" that I went to when a barefoot boy, I should have to

"pass examination" to determine my fitness to teach a little squad of boys and girls how to read and write. The school law New Hampshire not only fails to recognize the educational diplomas of mushroom States like California, but, with true Puritan stubbornness, neglects to provide her own sons that pick up enough education to become teachers, with any kind of a State document which they can carry with them to the States where they go to earn a living.

It would be the same were I to go "looking out for a school" in Maine, or Vermont, or Massachusetts, or Rhode Island, or Connecticut, or in any State in the Union, except my own adopted State.

Were my esteemed friend, Mr. Philbrick, the Superintendent of the Public Schools of Boston, crowned with the well earned honors of twenty-five years of educational labor, to lose his position at the next annual election, and in consequence, were to emigrate to California to teach school to earn a living, he would have to pass a rigid examination before he could draw a dollar of the school fund for teaching the smallest school in the roughest mining camp in the State. Massachusetts has provided no means of giving her eduational veterans a certificate of public school service.

No State in the Union, except California, recognizes by law the normal school diplomas of other States. In fact, many of the States fail to recognize by law the diplomas given to the graduates of their own normal schools!

An illustration in point: A week before I left home a young lady came into my office, in San Franciso, in search of employment as a teacher. She was a stranger in our State, just arrived from Illinois. She had just graduated from the Illinois State Normal School. I presented her diploma to the State Board of Examination, of which I happen to be a member. A State diploma was at once issued to her, as the law required, and in a week I secured her a good school in one of the pleasantest towns in California. In any other State she would have been bothered and badgered with needless examinations.

There ought to be in every State a State Board of Examination, made up exclusively of professional teachers, including the Superintendent of Public Instruction, having power to issue life

diplomas to experienced teachers af the highest rank, and certificates of lower grades to younger teachers of lower rank; these diplomas and certificates to be issued only upon actual examination, in writing, and the record of examination to be indorsed on the certificates. And there ought to be a system of broad and liberal legislation in all the States, by means of which a professional teacher, holding a diploma or certificate in one State, should be guaranteed a legal recognition in all the other States.

It is true that this need is felt more in the newer Western and Pacific States than in the older States.

For instance, in California our teachers are drawn from every other State in the Union. These teachers must pass a written examination in our State before they can engage in teaching. This requisition often keeps them waiting for several months after their arrival. Occasionally a teacher arives, bringing a State certificate, or a normal school diploma, which is at once recognized under our liberal school law. But most of the States have failed to provide for any system of State certificates, by means of which their teachers can carry with them, when they emigrate, any certificate of professional fitness.

If the older States do not feel the local need of some provision of this kind, they owe a duty to their educated sons and daughters who seek a wider field of action in the newer States. They owe a duty to the cause of National American Education.

In addition to a State system of examination as a means of protecting the public schools against charlatans, ignoramuses, and humbugs generally, it is indispensable that every State have an efficient system of city, county, or township Boards of Examination. These boards ought to be made up of each city, county, or town Superintendent, together with from three to five professional teachers, themselves holders of high grade certificates. They should have power to issue, on actual written examinations, certificates of different grades, valid for periods of time ranging from two to ten years, according to grade. These boards ought to be paid a reasonable sum for their work, otherwise their work will not be well done. They ought to be made up exclusively of practical teachers, for the same reason that only lawyers can legally examine legal students applying for

admission to the bar; that only physicians examine medical students; and that only clergymen pass on the fitness of theological students to enter the ministry. By combining a system of State, city, county, and town examinations, together with inter-State legislation, something might be done to raise the standard of public school teaching.

It is a matter of surprise that so little has already been done in this direction. It can only be accounted for from the fact that nine tenths of the men and women engaged in "keeping school" are intending and expecting to get out of the business as soon as they can. Otherwise they would never submit to the humiliation of successive examinations by small officials, who often know little or nothing about education, but who delight in a little brief official importance.

It is urged against this plan of competitive professional examinations in writing, that "percentages" represent mere scholarship, and fail to gauge the power to disciplne, the tact to manage, and the skill to teach.

This may be true to some extent; but it is also certain that, while some good scholars may *fail* when submitted to the final test of the school room, no ignorant person can possibly make a good teacher under any circumstances. There is a grade of sholarship below which no man or no woman is fitted to make a trial of teaching. Above this standard, some will succeed and some will fail. So it is with graduates of the law schools, the divinity schools, and the medical schools.

It may be urged that boards of examination will show favoriteism, in issuing certificates to friends. So they will, unless the people elect incorruptible school officers, and appoint incorruptible teachers. The best laws ever framed, and the best systems ever devised, are never binding on corrupt or incapable executive officers.

It may be urged that the diploma of a college graduate ought to be taken as a valid certificate of fitness to teach.

Now, a college-bred young man may or may not be qualified to teach. I have known many young men coming to California, with flying colors and fresh diplomas, who ignominiously failed to secure a certificate to teach even the lowest grade country school, on an examination in arithmetic, grammar, geography,

history, reading, and spelling, so elementary in its character that, to a pupil of average attainment in the second grade class of an ordinary grammar school, it would have been mere play. They not only showed no "fitness to teach," but they exhibited a most lamentable ignorance of the very elements required to be taught in every common school. They might have been brilliant in the dead languages, but they misspelled their mother tongue; they murdered English, and they could'nt cypher. There can be no safe and sure test, except actual examination.

I do not deny that the hobby of written examinations may be ridden to death. It has been wickedly said by somebody—doubtless some luckless examinee—that the leading object of many examinations is to give the examiners a chance to show off their own attainments.

I have seen many sets of questions that seemed to be fossil curiosties picked up during a life-long search after abnormal things; "tough sums" in arithmetic and algebra, the product of some mathematician run to seed; gleanings of the tag ends of the countless rules, and notes, and exceptions, and annotations, and explanations, and illustrations, and idioms, of Lindley Murray—that great grammarian who wrote bad English and made sad the hearts of unnumbered generations of school boys and school girls; twisted and elliptical sentences to parse, according to Smith, or Brown, or Green, or Wells, or Weld, or Sanborn, or Kerl, or Hart, or Clark, or Quackenbos, or Bullion, or Pinneo, or Nokes, or Stokes, or Niles, or Stiles, or Thompson, or Pickwick; unheard-of words of crooked orthography, the gnarled growth of centuries of changes in the English tongue, strung together like onions, in a way that would have brought tears to the eyes of old Webster himself, that dear old philological bush-ranger, who fought orthography on his own hook, in defiance of all usage and of all laws of linguistic warfare; questions in geography, on zigzag boudaries, on the length of all rivers of all the world, from the Amazon down to the trout brooks that we fished in when boys; on the distance from the classic towns of "You Bet" and "Red Dog," in California, to Nijni Novogorod and the sources of the Nile; on the direction of Brandy Gulch and Whisky Canon from Ujiji or Fow-Chow; questions in history, requiring the year and the day of the month of the

settlement of every State in the Union, supplemented by senseless interrogations on historical myths known only in our school text-books; impracticable questions on theory and practice of teaching, about what ought to be done under impossible conditions; questions about elements of penmanship that even such accomplished penmen as Greeley, or Choate, or Napoleon Bonaparte could'nt answer; questions on Sanskrit roots, that no Brahmin ever heard of; questions on the Constitution that would have floored the Great Expounder; questions on physiology that would "stick" Hurley or Tyndal; questions that showed the examiners to be stick stark staring mad; questions so ridiculous that no sane man could answer them. But a practical system of examinations presupposes a common-sense style of conducting examinations.

In conclusion, I submit the following propositions for the consideration of teachers, and educators, and legislators:

First—A comprehensive system of State, city, county, and town boards of examination.

Second—Boards of examination to be made up of State, city, county, or town Superintendents, together with a limited number of professional teachers, appointed in the manner best suited to the school systems of the different States.

Third—A graded series of teachers' certiffcates, from life diplomas down to temporary certificates valid for one year, granted on actual examination only.

Fourth—Examinations to be conducted in writing, and the percentages allowed in each study to be indorsed on the certificate.

Fifth—A legal recognition, by each State, of the professional certificates issued in other States.

Sixth—A provision for the legal recognition, by boards of examination in each State, of the normal school diplomas issued by the normal schools of other States and of other countries.

Seventh—A determined and combined effort to shape legislation so as to secure longer terms of office to State, city, county, and town Superintendents, to members of boards of education, and to school trustees, thereby securing some degree of uniform progress in educational management.

Eighth—A war of independence to be waged against the out-

rageous system of the annual election of teachers—a plan which reduces teachers below the level of the smallest holder of the smallest post office in the gift of a victorious political party.

Mr. Swett closed with the following extemporaneous remarks, reported as follows:

In closing, I cannot forbear expressing my delight at meeting so many veterans in the cause of public school education; men whose honored names have been familiar to me during so many years of picket duty on the verge of the Pacific. On the long journey across the continent the material prosperity of the country so overwhelmed me that an educational convention seemed of little consequnce, compared with the mighty physical energies of the country, seen in the long lines of railroads, the great cities, and the productive farms of the Valley of the Mississippi; but now, when from this quiet school room, I reverse the glass and look back across our country so vast in extent and so rich in material prosperity; and when I consider that educated minds have transformed the whole land from the primitive wilderness into the beautiful homes of a happy people; when I think of the unseen power that moves this mighty mass of matter; when I remember that the steam engine, which whirled me three thousand miles in a week's time, was once only a dim notion in the mind of a thinker; that the telegraph wires—those nerves of the whole land, that radiate from the brain-centers of civilization, culture, art, and science—were created by the cultivated mind of a thinking inventor, I realize that there is an unseen power mightier than steam or electricity, and that the public schools are the great batteries that evolve this controlling force in civilization.

I magnify the importance of this convention. You who have not lived for twenty years away from the homes where you were born, cannot realize how deeply the wondrous beauty of the New England Summer time impresses a wanderer returned from the Pacific coast, where everything is a contrast to the face of nature on the Atlantic slope.

On the other side, I felt a thoroughbred Californian; but now,

among the scenes of my early days, I begin to feel like a full-blooded Yankee.

Every tree, every flower, every leaf, every dewdrop starts to life some long buried memory; the green grass, the changing cloud-pictures, the rich foliage, sunrise, and sunset flood my heart with tender recollections until I feel like throwing myself down in the shade of a great tree and crying like a school-boy.

There is a minor key of sadness, like the sighing of the wind in the grand old pine forests of my native hills. The boys I played with are scattered and gone, and I am a stranger in the house of my boyhood. Some are sleeping in the village churchyard; the graves of some are in the gold canons of California; beautiful faces, once dear to me, have vanished forever, so that I often find my eyes filling with tears, until, in the fullness of my heart, there remains only the sweet hope

> "That, in the hereafter, angels may
> Roll the stone from the grave away."

THE NEW PRESIDENT OF THE UNIVERSITY OF CALIFORNIA.

President Gilman was born in Norwich, Conn., in 1831, and in his boyhood removed with his father's family to the City of New York, where he was fitted for college. He graduated at Yale in 1852, and after a year of past graduate study, partly in New Haven and partly in Cambridge, he went to Europe as an attache of the American legation at St. Petersburgh. He spent a winter in study at the University of Berlin, and was afterwards Secretary of the Commissioners to the Paris Exhibition in 1855. His time in traveling was largely devoted to the study of educational and charitable institutions. On his return to New Haven he became interested with others in the establishment and development of the scientific department of Yale College, which has now become the Sheffield School of Science. He was librarian of the college from 1856 to 1865, and Professor of Physical Geography and History in the Sheffield School

from 1863 to 1872. For several years he was also Superintendent of the City Schools of New Haven, and subsequently State Superintendent of Instruction in Connecticuf. He has written for the *North American Review*, the *New Englander*, the *Journal of Science*, and other periodicals, and has printed several public addresses, but has published no volume.

In addition to his other duties Professor Gilman held the office of Secretary of the Sheffield School of Science, a position attended with much labor, but at the same time giving one rare opportunities for becoming familiar with the working and wants of such an institution. He comes among us young in years, but ripe in scholarly attainments, and especially familiar with what is useful in building up a great iustitution of learning, such as we are now endeavoring to make the State University at Oakland. We have no doubt but his inauguration to the Presidency of that institution will prove an important era in its history. We bespeak for him a hearty welcome, and earnest support from all who are interested in the great cause of education.

[*Extract from President Gilman's Inaugural Discourse, delivered at Oakland, November 7th*, 1872.]

"One of the topics to be considered is the relative importance of different branches and what studies most deserve encouragement. Shall literature and language, the traditional classical course of our colleges be made first in rank? or shall the place it has held be given up to science in its theoretical and practical aspects? are the modern languages to be chosen rather than the ancient? shall history and political science, with the study of the Roman law, or the theory of the State be preferred; or shall mathematics be the dominant theme? is the acquisition of knowledge, or the acquisition of discipline, as it is called, to be the end of instruction? shall general studies which may be presumed to have an equal value in all the varied callings of life, or special studies which have a decided reference to a professional or technical career be recommended to the youthful student? shall lectures, or shall recitations or shall literary and scientific research be the method of education? shall university freedom of choice and of work be permitted, or shall

collegiate restrictions and control be insisted on? These and a score of kindred questions are now under discussion in the various colleges of this country.

A part of the difficulty arises from confusing the requirements of young scholars, like those who have just left the high school and the academy, and those of more advanced students whose tastes, talents, and wants are specialized. Give the former, prescription; give the latter, freedom; but let prescription vary with the varying peculiarities of individuals; and let the freedom allowed be the freedom that is governed and protected by law. College work for college boys implies daily guidance under prescribed rules; professional work implies voluntary, self-impelled enthusiasm in the acquisition of knowledge.

Another difficulty arises from the rapid extension of human science. It would be impossible for any one, were he gifted as Leibnitz, or long-lived as Humboldt, to master the details of modern researches. The average scholar, having neither the genius of the one nor the life-assurance of the other, must be content to fill a much more restricted field. I take it for granted that in the State of California there is occasion to make a plea for the study of modern science. The need of civil, mining, and mechanical engineers, of expert geologists and mineralogists, of devoted naturalists and physicists, of chemists and metallurgists, of geologists, topographers and map makers, of agriculturalists, mechanics and manufacturers and merchants, well trained for their various callings is now so obvious, that I need not advocate the importance of science in education. Its place is acknowledged. The question is how to secure the best sort of instruction, the fullest sequence and relation of studies, the most eminent teachers, the most complete laboratories, and the best apparatus; and likewise how to encourage that special proficiency which is indispensable to success in modern scientific professions with that literary culture which makes a scholar and befits a gentleman. Health, wealth, popular intelligence, and the spread of Christian civilization are so dependent upon the discoveries of science and the application of these discoveries to a thousand useful arts, that a young and still undeveloped State may well afford to be liberal in the encouragement of this class of studies. How best to secure this scien-

tific education it would take long to tell, and I postpone the special consideration of this theme for another near occasion.

But while nature and its laws in all their various aspects and applications are thus engrossing, man and all his experience and achievements are likewise of transcendent importance. Above all matter is man; above both matter and man is the "Divinity that shapes our ends, rough hew them as we will." So that the individual or the institution that regards the natural forces of this globe only, without observing likewise the intellectual and spiritual forces which are also at work, sees only half the world.

I recognize in the fullest degree the need there is of science. Give us more of it and not less. Encourage the most thorough and profound search for the truth which is to be found in the rocks, the sea, the soil, the air, the sun, and stars; in light and heat, and magnetic forces, in plants and animals, in the human frame, in physical ethnology and in archæology; but let us also learn the lessons which are embodied in language and literature, in laws and institutions, in doctrines and opinions, in historical progress and international relations. Let language, history and literature, oratory, poetry and art still form a chief part of liberal culture, while mathematical, physical, and natural sciences be admitted to the rank from which they have long been excluded.

When the time shall come to discuss in detail the possible changes in the university courses, when an enlarged faculty and increasing funds shall enable the authorities to provide a more generous and varied culture, we shall find the experience of other institutions in a high degree suggestive.

At West Point we see the excellence of superior mathematical training, a well devised course of text-books, rare qualities in the chief mathematical instructor and in his associates, power to prescribe exactly what the course shall be, life-long honors dependent upon success; hence comes the renown of that school of engineers from which Bache and Humphreys and Trowbridge have been sent forth. The scholar's choice is Hobson's.

At Harvard, in the undergraduate department, liberal provision is made for instruction in ancient and modern languages, in chemistry, mining, physics, mathematics, in history, metaphysics and ethics, in botany, mineralogy, and natural his-

tory. The choice in all this variety of studies is given to the scholar soon after his entrance.

At New Haven, the traditional college course has been maintained with a cordial recognition of the modern languages and of history; and side by side with this classical college, the Sheffield School of Science has grown up, where scientific studies predominate. The scholar chooses when he enters between the scientific and the classical course; the latter allows but little further freedom of election; in the Sheffield School there is again a choice between seven different courses.

At Cornell University there is the Harvard freedom of choice with easier conditions of admission to all lines of study but the classical, with manifold modern appliances and helps for the pursuit of technical and scientific studies, and with a generous recognition of history and humanity fostered by the studies of President and of the illustrious Oxford graduate, who has there made his home.

At Princeton, since the accession of the able Scotch metaphysician who guides its affairs, required studies, mathematical and linguistic as of old, engage the student in his first two years; in the last two years of his residence he selects one of several prescribed specialities.

Besides these universities and colleges we must also inquire what the independent schools of agriculture and technology are doing, as in Boston and Amherst, Hoboken and Troy, Urbana and Lansing. English and German experience will likewise be of value. Everywhere the problem is one, but the solutions are manifold, for the conditions are complex and vaguely determined.

With all the experience of other places before us, it is my belief that one of the first wants of California is a distinct, complete, and well organized school of science and technology, such as your organic laws contemplate, in which men of eminence shall have the means and leisure to make researches in all the departments of investigation, to whom young men shall resort for training in the studies which are closely related to the development of mines, agriculture, manufactures, and means of transportation, and from whom the public at large, by the press, by the lecture, and by informal consultation, may be instructed

in the characteristics of this remarkable country and the mode in which its resources can be made most serviceable to mankind. My chief anxiety is whether the people of this coast are yet ready to pay for the luxury and the advantage of so serviceable an institution. It will require a great many teachers, costly laboratories, large funds—more I fear than the University with all the claims upon its treasury is yet able to command. Perhaps some individual whose experience has brought him the value of such knowledge, and who has an honorable ambition to have a name among the benefactors of the State, will supplement the resources of the University with a generous private gift, like those which have done so much for the culture of Eastern youth and the improvement of the Atlantic States."

NATURAL SCIENCES AND INDUSTRIAL EDUCATION.

THE INFLUENCE OF VEGETABLE PERFUMES.—An Italian professor has made researches which lead him to assert that vegetable perfumes exercise a healthful influence on the atmosphere, converting its oxygen into ozone, and thus increasing its oxidizing influence. The essences that develop the largest quantity of ozone are those of cherry, laurel, cloves, lavender, mint, juniper, lemons, fennel, and bergamot; those that give it in less quantity are anise, nutmeg, cajeput, and thyme. The flowers of the narcissus, hyacinth, mignonette, heliotrope, and lily of the valley, develop ozone in closed vessels. Flowers destitute of perfume do not develop it; and those which have but slight perfume develop it only in small quantities. As a corollary from these facts, the professor recommends the use of flowers in marshy districts and in places infested with animal emanations, as the powerful oxodizing influence of ozone may destroy them. The inhabitants of such regions should surround their houses with beds of the most odorous flowers.

CALIFORNIA ACADEMY OF SCIENCE.—Prof. Davidson, on behalf of the Alaska Commercial Company, presented a tusk and lower jaw of the *Elephas primogenius*, brought from Elephant Point,

Escholtz Bay, Kotzebue Sound. The Professor stated that the Company refused $150 for the tusk. These fossils are found at the base of a high cliff, where a large deposit was discoved in 1824, by the British ship *Herald*. The Company was informed of the existence of two complete skeletons of the elephant on one of the Aleutian Islands, and the Professor hoped to secure one of them for the Academy. Prof. Dall, of the United Coast Survey, stated that the remains of the mastodon abounded along the northern shores of Siberia and of this continent, and are usually found on the surface. These bones, which are exposed during the summer months, are not well preserved, the tusks and teeth being generally the only parts preserved, and even these are so far affected as to destroy their value commercially. Kotzebue, who first discovered this deposit, says that they were found at the foot of a cliff of solid ice which was covered with a layer of soil. Subsequent examinations confirmed this fact. Since Kotzebue's visit a portion of this cliff has disappeared and the depth of the bay reduced, which led Professor Dall to think that the whole coast of Alaska is gradually rising, and landmarks noted then were no more ancient in their emergence than the elephant remains. Dr. Kellogg exhibited specimens of the wild hollyhock abounding in the tule lands, which has a similar fibre to the ramie plant. Dr. Kellogg considered it fully as useful as that plant for manufacturing purposes. J. P. Dameron presented a specimen of the *Chinara Collici*, a fish seldom found in these waters. When Professor Agassiz gazed upon this finny variety he is said to have "smiled a pleasant smile."

FLOWERS AND CHILDREN.—In an article in the May number of *Art*, on the influence of toys in educating and forming the tastes of children, Blanchard Jerrold writes charmingly on the subject of flowers. He says: I would have flowers crowded in the schoolroom windows of the very young. I would build broad open balconies for the baby scholars, where, during every daylight moment of fair weather they might have fresh air and bits of beauty flowering under their inquiring eyes. I would have the Pouponniere of Brussels copied, making elementary education—not when a child has been already erected into a

little monster by bad parents and evil surroundings, but in its protracted cradle, in the first shaking of its rattle, and the first pointing of its fingers to pictures and plants. We should—or our children would—see the good results of such cradle teaching, of æsthetics thrown into the alphabet, into the toy-shop, the play-ground, and the adornments of the school room; for the child that is alive to the simplest lessons and beauties of the field, that can delight in striving to imitate—if only with straw or paper—a beautiful form placed before it, is farther on the way to a higher education, even should subsequent events prove untoward in its path, than the creature of dull, unformed sight in fancy, who may be kept well at school under good masters. A feeling for the beautiful, a delight in it, which is at present almost unknown in England, is that which we must strive after—not in art academies, but in infant schools and nurseries. The roughest Dutch doll is a Venus di Medici to the child that nurses it We give the ugly thing to the child, and so make for ourselves the after difficulty of proving that dolly is ugly. The remark applies to nearly all toys—certainly to all that are English.

TREES AND RAIN.—A correspondent writes thus to the *Bulletin of the Torrey Botanical Club*: "The influence of trees upon rain and the general moisture of the atmosphere, which has been much discussed of late, receives a strong illustration from the island of Santa Cruz, West Indies. A friend who spent the months of February, March, and April last upon this island, informs me that when he was there twenty years ago the island was a garden of freshness, beauty, and fertility. Woods covered the hills, trees were everywhere abundant, and rains were profuse and frequent. The memory of its loveliness called him there at the beginning of the present year, when, to his astonishment, he found about one third of the island, which is about twenty-five miles long, an utter desert. The forests and trees generally had been cut away, rainfalls had ceased, and a process of desiccation, beginning at one end of the land, had advanced gradually and irresistibly upon the island, until for seven miles it is dried and desolate as the seashore. Houses and beautiful plantations have been abandoned, and the people watch the ad-

vance of desolation, unable to arrest it, but knowing almost to a certainty the time when their own habitations, their gardens, and fresh fields will become a part of the waste. The whole island seems doomed to become a desert. The inhabitants believe, and my friend confirms their opinion, that this sad result is due to the destruction of the trees upon the island some years ago."

THE COLOR OF THE HAIR.—The significance of the color of the hair is often peculiar. By those who claim to have studied the subject, it is stated that the dark haired races are physically the strongest, but less endowed intellectually than the fair haired. The first are more inclined to manual labor and active exercise, and the last to mental exertion. Black hair indicates strength and a predominance of the bilious temperament, as in the Spaniards, Mexicans, the Indian, and the Negro. Red hair is a sign of ardor, passion, intensity of feeling, and purity of character, and goes with the sanguine temperament, as in the Scotch, Irish, the Swede, and the Dane. Auburn hair is found most frequently in connection with the lymphatic temperament, and indicates delicacy and refinement of tastes, and, if the mind be cultivated, fine moral and intellectual powers. It is common amongst the Germans and Anglo Saxons. Dark-brown hair is, perhaps, all things considered, the most desirable color, as it combines the strength of the black with the exquisite susceptibilities of the light hair.

A GOOD illustration of how slight causes, when constantly operating, may in time eventuate in important changes, is found in what is now taking place on our Arctic shores. According to the New Bedford *Mercury*, probably not less than fifty thousand walruses, with their young, were last year killed or destroyed by our Arctic whalemen. Since the whale has been driven north, the walrus has become the main reliance of the natives for their food, clothing, boots, and dwellings; as he has also become to others as the chief object of commercial attention. At the present rate he must soon be exterminated, or, like the whale, driven out of reach. The question now is, shall our whalemen keep on taking the walrus, and eventually starve and depopulate these Arctic shores?

Six splendid zebras, valued at six hundred dollars apiece, have just arrived at the Jardin d'Acclimation, in Paris, as a present from the new Emperor of Abyssina. It is a prevalent idea that the zebra is untamable, but M. Jeoffroy Saint Hilaire, who has already made sundry experiments in contradiction of this opinion, has determined to prove its fallacy by taking a drive down the Champs Elysees some time during this month, in a coach drawn by six Abyssinian zebras.

M. ZEIGLER, member of the Paris Academy of Sciences, has observed in the leaves of the *drosera* a phenomenon which, if proved to exist, is extremely curious. The scilia on the edges of the leaves of this plant, on being touched by an insect or other living animal, bend toward it, leaving where they touch a minhte drop of gummy liquid, which is continually exuding at their roots. According to M. Zeigler, inert substances do not possess this property of causing flexure of the cilia ; but certain substances of animal origin, for instance, albumen, may acquire the property by simple contact with a living amimal. Vegetable grains are affected in the same way. These substances appear to take from the animal something which renders them capable of affecting the scilia of the *drosera*. If this is the case, then an animal in constant contact with matter capable of thus subtracting from it must be in a condition less favorable to nutrition, other things being equal, than he would be were he not so placed. And this M. Zeigler appears to have proved by experiment. Preparing some light wooden cages, each of which was just wide enough to receive a single rabbit, with its hairs touching the two sides, he flanked a part of these with packages of dried albumen, leaving an equal number without any such contact. A rabbit was placed in each, and all were fed alike. Very soon those exposed to the influence of the albumen began to droop, and before the end of the experiment showed positive signs of disease, while the others remained well, and had considrably increased in weight.

DEPARTMENT OF PUBLIC INSTRUCTION.

ALL EXAMINATION PAPERS which are to be submitted to the State Board of Examination must be sent either by Wells, Fargo & Co's Express, at the sender's cost, or by mail, *full letter postage prepaid.* Any set of papers insufficiently prepaid will not be taken out of the post office. It has cost us, every quarter, from five to ten dollars to pay for insufficient postage on examination papers. Double rates are charged if part of the postage must be collected at the office of delivery.

SOME County Superintendents, when submitting to the State Board of Examination the papers of an applicant for a State certificate, send incomplete papers, or omit the credits allowed in the oral exercises. The applicant, without his fault, loses many credits, and frequently fails to obtain a well deserved State certificate. The State Board is not to blame in this matter. Each quarter a circular is sent, giving a synopsis of the rules of the State Board, as far as they refer to an application for a State certificate upon a county examination. Then, in the "Instruction to County Boards of Examination," are recapitulated the studies in which applicants must be examined.

FOR the December Quarterly Examination the State Board has prepared no paper on Reading. County Boards will please frame their own questions and exercises in this study.

WE have heard of two instances in which a school district voted to "levy a tax of seventy cents on each hundred dollars of taxable property, for a term of years until a sum is raised sufficient to build a schoolhouse." There was no trouble to collect the seventy cents on each hundred dollars the first year; but when, in accordance with the proposition voted upon, it was attempted to collect the seventy cents the second year, some taxpayers contended that the tax could not be collected without another vote of the district, according to the provisions of section ninety-one of the School Law. Even granting, for argument's sake, the legality of voting a tax to be collected for a term of years, the very fact that a one year's maximum tax is not sufficient to raise the sum needed for building purposes shows that more than seventy cents on each hundred dollars must be voted and *is* voted. For if it is voted to collect seventy cents this year and another seventy cents next year, an actual tax of one dollar and forty cents is levied, and not a tax of seventy cents, the maximum rate allowed by law. The provisions of section ninety-two offer some further reasons, if they were needed, why it is illegal to levy a tax which is to be collected in a number of yearly installments.

It frequently happens that a teacher who is not the holder of a legal certificate, makes an agreement with a board of trustees to teach their public school, and to demand his salary only in case he succeeds in obtaining a certificate before the close or immediately after the close of his term of teaching. Section sixty-three of the School Law provides that no teacher shall be entitled to draw for salary any school moneys unless the holder of a legal State, city or county teacher's certificate, in full force and effect. In other words, a teacher can draw for salary any public school money only for the time he taught while the holder of a legal certificate. If a teacher wishes to draw his salary for the whole term he taught a school, he must hold a certificate dated previous to the opening of the school. If at the opening of the school he does not hold a certificate, he can draw salary only from the day when he obtains such certificate. If, as it has happened, a teacher should obtain a certificate only at the close of a

term of teaching, said teacher cannot demand for such term's teaching any public school moneys.

ONE of the most curious questions ever submitted to us is the following: In accordance with the provisions of section twenty-nine of the School Law, a new district is formed. The County Superintendent *immediately* appoints trustees to hold office until the district can hold a school meeting for the election of trustees. Such school meeting is duly held; but for some reason or other the elected trustees refuse to qualify. Thereupon the County Superintendent declares that the new district has thereby lost its organization, and that the action of the supervisors making a new district is void. The district demurs to this and appeals to us. From section thirty of the School Law it is plain that the action of the supervisors making a new district shall be void *only* when the new district fails to open a public school within four months from the action of the supervisors. If the electing of trustees were one of the requisites to the organization of a new district, the Law would have specified it. The County Superintendent above referred to, evidently does not understand the working of the law in this matter. According to his opinion there could be no such thing as a new district acting under trustees appointed by the County Superintendent. Yet, section nineteen and thirty-seven speak of trustees appointed for new districts. The County Superintendent erred in appointing trustees before the lapse of thirty days after the district was formed by ordinance of the board of supervisors. The thirty days spoken of in section thirty-eight are granted for the purpose of enabling a new district to choose its own trustees. It is only when after the lapse of thirty days the district has neglected to elect trustees, or the elected trustees have failed to qualify, that the County Superintendent can and *must* appoint trustees, in accordance with section nineteen.

A TRUSTEE asks us whether copy-books are stationery within the meaning of section forty-eight. The Attorney General decides *no*.

CORRECTION.

OAKLAND, November 12th, 1872.

Editors California Teacher: Some one has misinformed you as to the matter noticed in the following paragraph of the November TEACHER: "Students are now admitted into the College of Letters on an examination in Latin, without Greek. They begin Greek in the University." The facts are as follows: No change has been made in the curriculum of the College of Letters. The Greek course is continued as heretofore, and applicants for admission to the College of Letters will be asked to pass the usual examination in Greek. But for this year, as an experiment, there is an *additional* class in Greek for those whose preparation was insufficient. The members of that class have the opportunity of going rapidly over the preparatory Greek, and of presenting themselves for admission to next year's Greek class. By falling behind a year and continuing behind in that study, they will be able at the end of their four years to pass all their Greek examinations and take their degree in the College of Letters. No Greek is required in the fourth year of the course. The teachers of schools throughout the State should understand the importance of giving their pupils a thorough preparation in both Latin and Greek, that they may rightly use the advantages of the classical course in the University. K.

IT will be some time in December before we shall be able to furnish the new School Law. This is owing to the delay in issuing the Political Code. As already stated in

the July number of the TEACHER, the new law does not differ materially from the old law. The following are the points of difference which are of immediate importance to school officers: 1. School grounds, when practicable, must be adorned with fruit and ornamental trees and shrubbery. 2. Union Grammar Schools of two or more contiguous districts are abolished. 3. Natural history, vocal music, and industrial drawing are added to the course of studies. 4. Applicants for certificates must be examined in natural history, vocal music, and drawing, in addition to the studies now required by law. 5. The standing of each applicant in each study and in the class must be indorsed on the back of each certificate, otherwise it is not a legal certificate. 6. In cities having graded schools beginners shall be taught for the first two years by teachers who have had at least four years' experience, and such teachers shall rank, in point of salary, with those of first grade. In this connection we call the attention of school officers to an amendment to an Act to establish a State Normal school. In the Act of 1870 it is provided that the certificates and diplomas granted by the Board of Trustees shall entitle the holders to teach in any county in the State for the time and in the grade specified in the certificate or diploma. The whole of this provision was at first retained in the Political Code, section fifteen hundred and three of which stated that "every person holding a certificate or diploma issued by the Board of Trustees of the Normal School may teach in the public schools of this State for the time and in the grade prescribed by the certificate or diploma." This section was amended by striking out the words "certificate or" wherever they occur. The section now reads: "Every person holding a diploma issued by the Board of Trustees of the Normal School may teach in the public schools of this State for the time and in the grade prescribed by the diploma." County superintendents, trustees, and teachers holding State Normal School certificates will please bear in mind that after the first day of January, 1873, a State Normal School certificate will no longer entitle the holder to teach a public school.

EDUCATIONAL ITEMS.

LINCOLN SCHOOL.—J. K. Wilson has been elected Principal of the Lincoln School, San Francisco. Mr. Wilson has a high reputation as a successful teacher. He is the right man in the right place.

MR. C. F. KIMBALL, a graduate of Waterville College, has been elected Principal of the Los Angeles Boys' Grammar School. Dr. T. H. Rose, who has held that position for the past five years, is elected Principal of the Los Angeles High School, with the supervision of all the public schools of the city.

TRAINING COLLEGES.—Prussia possesses at this time eighty-eight normal schools, five of which are training colleges for female teachers.

OUR GEOLOGICAL SURVEY.—The great value of the geological survey of California may be seen from the reputation which it is steadily gaining at home and abroad, and the hearty commendation it receives from American and foreign savants. Professor Agassiz paid a high tribute to the survey. President Gilman, of the State University, commented upon the great value of the work and the able and economical manner in which it has been carried on. Sir Roderich Murchison, late President of the Royal

Geographical Society, and Sir Henry Rawlinson, his successor, praised it warmly in some of their annual addresses. The Secretary of the Royal Geographical Society writes that the survey has created the greatest interest in that body, and that at the next meeting Professor Whitney will be elected an Honorary Fellow. Dr. Petermann, the great German geographer, prints in the last number of his journal some paragraphs in relation to the California survey, and speaks of its extraordinary value to all branches of science. He has also named two newly discovered points in Nova Zembla in honor of Hoffman and Whitney. The Geological Society of London has recently elected Professor Whitney a Foreign Correspondent—an honor which is limited to a very small number, and only shared by five other Americans, Dana, Hall, R. E. Rodgers, Leidy, and Lesley. Professor Whitney has resigned his position in Howard University that he may devote his whole time to the new volumes of reports and the additional maps and charts, which are in a forward state of preparation.

On the 24th of August the American Association for the Advancement of Science passed a resolution with regard to what is known as "the China Indemnity Fund;" the name given to a large sum which China overpaid in settling for damages to United States citizens, and which, when informally tendered to the Chinese Government, was declined, with the intimation that pressure on the subject would be hurtful to Asiatic pride. This fund now amounts to $450,000; and a bill is now pending in Congress which proposes to appropriate this surplus for the education of Americans and Chinese "in the languages, literature, and sciences of the respective nations; to facilitate commercial, diplomatic, and scientific intercourse between the two peoples; and for the increase and diffusion of knowledge among men." It is apparently intended to accomplish this purpose by establishing an American college in China; and the resolution of the Association "heartily indorses the purpose of the aforesaid bill."

SCHOOL FOR PRINTERS.—Schools for printers are in existence in all parts of Germany. Apprentices and artisans attend them largely, and are taught the theory and practice of printing and kindred arts, as well as a general knowledge of foreign languages, and an accurate knowledge of the types of all languages they are likely to meet with in their calling. One of the largest and best organised is in Stuttgart.

SCHOOL FOR BOOKSELLERS.—There has been a booksellers' school at Leipsic for some time, but it does not yet meet the requirements of the students and there is soon to be a higher division organized. The course of instruction in the new department will be divided into three classes, and will demand three years' study; it is to embrace the literary as well as the practical side of the business, that the young man may be thoroughly fitted for the varied duties and interests of his calling. It is interesting to note the course of study, which comprises ancient and modern languages, the science of commerce, mathematics, geography, history, natural sciences, drawing, writing, bibliography, booksellers' technical information, business management, statistics, history of the present time, history of the book trade, æsthetics, elocution, debate, together with a study of the types and written characters of all languages. This new and brilliant enterprise has just begun its first term. It has been suggested that instruction should be added in the theory of the art of printing. Printers who have occasion to work for booksellers often express themselves astonished at the great ignorance their employers show of the simplest details of typogra-

phy, which in many cases leads to serious misunderstandings, and almost always causes great expense and waste of time.

CLIMATE OF LOS ANGELES IN NOVEMBER.—Two orange trees in full blossom, and at the same time literally covered with fragrant white flowers, may be found in the Wolfskill orchard.

SALARY LIST OF THE CITY AND COUNTY OF SAN FRANCISCO, ADOPTED NOVEMBER 19TH, 1872.—Principal of Boys' High School, $250 per month, $3,000 per annum. Assistants of Boys' High School, $150 per month, $1,800 per annum. Principal of Girls' High School, $208 33 per month, $2,500 per annum. Assistants, $150 per month, $1,800 per annum. Principal of Model School, $125 per month, $1,500 per annum. Principals of Grammar Schools, $175 per month, $2,100 per annum. Vice Principals of Grammar Schools, $125 per month, $1,500 per annum. Head Assistants of Grammar Schools, $100 per month, $1,200 per annum. Assistants teaching first grades boys, $92 50 per month, $1,110 per annum. Assistants teaching first grades girls, $85 per month, $1,020 per annum. Assistants teaching second grades boys, $83 33 per month, $1,000 per annum. Assistants teaching second grades girls, $75 per month, $900 per annum. Assistants teaching third grades boys, $75 per month, $900 per annum. Assistants teaching third grades girls, $72 50 per month, $870 per annum. Assistants teaching fourth grades boys, $72 50 per month, $870 per annum. Assistants teaching fourth grades girls, $70 per month, $840 per annum. Assistants teaching French and German (Goepp and Itsell), each $125 per month, $1,500 per annum. Assistants teaching French and German (Loudon, Carr, and Solomon), each $100 per month, $1,200 per annum. Principal of South San Francisco School, $150 per month, $1,800 per annum. Principal of Potrero School, $115 per month, $1,380 per annum. Principals of Primary Schools of sixteen classes or more, $150 per month, $1,800 per annum; fourteen classes or more, $145 per month, $1,740 per annum; twelve classes or more, $135 per month, $1,620 per annum; ten classes or more, $125 per month, $1,500 per annum; eight classes or more, $115 per month, $1,380 per annum; six classes or more, $105 per month, $1,260 per annum; four classes or more, $95 per month, $1,140 per annum; two classes or more, $85 per month, $1,060 per annum. Principal Ocean House School, $100 per month, $1,200 per annum; of Point Lobos School, $100 per month, $1,200 per annum; of West End School, $100 per month, $1,200 per annum; of Colored School, $100 per month, $1,200 per annum; Laguna Honda School, $100 per month, $1,200 per annum. Assistants Primary Schools, $67 50 per month, $810 per annum. Probationary teachers, first grade, $55 per month, $660 per annum; probationary teachers, second grade, $50 per month, $600 per annum. Teachers of music and drawing, $150 per month, $1,800 per annum. Principals Evening Schools, $60 per month, $720 per annum; assistants of Evening Schools, $50 per month, $600 per annum. Teachers of reform classes, $115 per month, $1,380 per annum. Office boy, $40 per month, $480 per annum. Truant officer, $100 per month, $1,200 per annum.

A NEW HAVEN paper, of a late date, contains the following account of a visit of the Japanese Minister to the schools of that city:

"Mr. Mori, minister from the Japanese Empire to this country, paid a visit yesterday under escort and by invitation of Secretary Northrop, to the Dwight School, the Skinner School, and the High School. The minister was highly pleased with what he saw and heard relative to our schools, and with our beautiful city. At the High

School he was entertained by the combined force of pupils in the assembly room in singing, led by Prof. Jepson. A new musical exercise upon the blackboard, written for the occasion by Mr. Jepson before school began, and which none of the pupils had ever seen before, was at at a proper time placed before their eyes, and the school readily sung it from sight. It was quite a difficult composition. The pupils sang various selections from the tune-book, including Home! Sweet Home! and other well-known airs. The singing exercises concluded, Mr. Parish, Superintendent of the schools, introduced Mr. Mori, who, in very fair English, briefly expressed delight at the musical exhibition given him, and said he thanked the school very much for it. The school was then dismissed, the visitors remaining to witness the method of dismissal, which is very systematic, the various component parts marching out in turn and to music upon the piano. One of the scholars operated at the instrument for the purpose quite effectively. The singing done by the school was accompanied with piano music by Prof. Jepson. Upon the platform with Mr. Mori, were Secretary Northrop and four Japanese children, two boys and two girls, also Mr. Sperry, President of the Board of Education, and other gentlemen. The two Japanese boys were under the care of Mr. Northrop, of West Haven, with whom they reside. The two girls have just arrived in New Haven, and are domiciled at Rev. Dr. Bacon's, where they are to reside. There were also quite a number of gentlemen and lady visitors seated in the High School room near the stage. The Japanese minister stopped yesterday at the New Haven House. He spent the evening with Professor Northrop very pleasantly, and was introduced to some of the literati of the city. To-day he goes to Hartford to pay a visit to the High School there, the Deaf and Dumb Asylum, and perhaps other institutions! He is a modest, unassuming gentleman, has a sharp, keen eye, was attired in black, wears a tile and held it in his hand when addressing the High School.

BOOK NOTICES.

INTRODUCTION TO ANALYSIS AND PARSING. By G. E. Lighthall. 18 mo., 62 p., 25 cents: A. Waldteufel, Publisher, San Jose.

The author begins the study of grammar with the simple sentence, and carefully avoids definitions. This is the right way, in fact, the only way. For the sentence is the unit of thought, and should, therefore, be the starting point of grammatical instruction. By doing so, our children will encounter no difficulties in recognizing the proper functions of the different words used in the sentence. The English, being almost entirely free from inflections, imperatively demands such a course. No external signs, but simply its use, determine the kind of word.

The author might have reduced its contents still more, and yet it would have answered all purposes of good instruction. He states that it has been submitted to the class-room, and found to answer all expectations. School books should grow in the school-room, and should not be compiled in the elegant study of men who are anything but teachers, but who have the pardonable desire of making money. We hope that in a second edition the author will free the little work from certain crudities. Teachers, who desire to pursue a rational method in teaching grammar, will do well to examine this little book.

SOMETHING NEW.—L. Prang & Co., of Boston, will shortly bring out a series of small chromo cards on Natural History. They are designed by N. A. Calkins, Assistant Superintendent of Schools of the City of New York. They include sets of twelve cards each, on all kinds of leaves, roots, and plants. They are by far the most beautiful card-paintings ever published for school use. Through the kindness of Messrs. Prang & Co. and of Mr. Calkins, we were furnished with some advance sets, which we are not yet tired of admiring. When announced for sale, we shall notice in full.

WILL BE PUBLISHED.—The Proceedings of the National Educational Association, held at Boston last August, will be published in book form during the month of December. To accommodate teachers who may desire copies, Payot, Upham & Co. have ordered fifty copies, which will be sold at one dollar a copy. Orders received in advance.

WEBB'S FIRST LESSONS IN LANGUAGE AND DRAWING. Designed to teach at home and at school, How to Talk, How to Read, How to Draw on the Object Lesson Plan. By J. Russell Webb: For sale by Libby & Swett, Publishers and Booksellers, San Francisco.

A little book of 120 pages, of more than common interest—a phenomenon in our educational literature. We strongly recommend it to all primary teachers who desire to make their instruction interesting, and free themselves from that mechanism which destroys the mind and body of the pupils as well as of the teachers. A careful study of the first twenty pages will amply reward and infuse new life into elementary teaching, generally considered burdensome, and even destructive to health.

Yet, excellent as the little book is, it is not free from defects. We sincerely hope that some philanthropic teacher will write a book in which the Word-method, or rather the Writing-reading-method is carried out to its full extent and logical sequence. "The education of the child must accord, both in mode and arrangement, with the education of mankind, as considered *historically*; or, in other words, the genesis of knowledge in the individual must follow the same course as the genesis of knowledge in the race." This great truth forms the basis of all rational methods, and its violation will always prove a defect. The author violated this principle by introducing reading before writing. The phonetic mode of writing prevailed originally in the Sanscrit, Arabic, Phœnician languages, and the inventor of the phonetic mode must have passed necessarily three stages of development: 1st. He resolved words into their elementary sounds; he analyzed. 2d. He invented signs to represent these elementary sounds; he wrote. 3d. He uttered these elementary sounds thus represented by signs; he read. In accordance with the above deductions we should observe, in teaching reading, the following course:

1. Things, before talking (sense, perception).
2. Talking, before writing (expression, language).
3. Writing, before reading (representation).

The method pursued in this little book is by no means new. It was already advocated, in the year 1618, by Ratchins, a teacher in Holstein; and again, in 1719, by P. de Launey, in his work "Méthode et Art d'apprendre á lire le Francais et le Latin."

THE BRYANT & STRATTON BUSINESS ARITHMETIC. A new work, with practical problems and valuable tables of reference. Designed for business men, commercial, agricultural, and scientific colleges, normal and high schools, academies, and universities. By H. B. Bryant, E. E. White, and C. G. Stowell, M. A. New York: Mason, Baker & Pratt. 1872. 564 pp. $2.50.

The object and design of the work is to give a clear understanding of the science

of numbers and the art of commercial and business computations. The book is divided into three parts: The scientific, practical, and tabular. Parts second and third are particularly instructive and extremely useful. Many a subject is treated of which rarely finds its way into an ordinary treatise on Arithmetic. The book should be on the table of every teacher of highor classes, and also in every district library.

(Other books received too late for this issue, will be noticed in our next.)

SCRIBNER'S MONTHLY.

The publishers of this periodical, in their prospectus just issued, promise for the ensuing year a brilliant array of contributors, and an increase in the variety of illustrations. Among the "good things" promised for 1873, we note the following: A serial story by Dr. Holland; a new story by Saxe Holm; a long story from Bret Harte; Clarence Cook On Furniture and Decoration; R. H. Stoddard On Authors.

HISTORY OF ENGLISH LITERATURE. By H. A. Taine. Abridged from the translation of H. Van Laun, and edited with chronological tables, notes, and index, by John Fiske. Holt & Williams, New York.

Taine's well known work on the History of English Literature is so universally appreciated and so generally considered the best work on the subject ever published, that it would seem a waste of time to refer once more to its great merits and excellencies. Teachers will be glad to learn that Messrs. Holt & Williams, of New York, have published an abridgment containing all the essential features of the original work. By this praiseworthy undertaking the publishers have brought the work within the reach of everybody. The very words of the author have been retained in nearly all cases; only here and there, a word, a sentence, a paragraph or two, and sometimes a half dozen pages have been omitted, being not essential to the continuity of the exposition or to its completeness; also quite a considerable part of the curtailment has been effected by the omission of indecent passages and citations, the more elaborate philosophizing, and the chapters on contemporary authors.

LITTEL'S LIVING AGE.

Those of our readers who wish to be furnished with the *cream* of current English literature at small cost, will do well to read the prospectus of LITTEL'S LIVING AGE, to be found among our advertisements.

SCHOOL-DAY VISITOR.

Our young friends read this magazine with increasing pleasure every month. The publishers offer special inducements for new subscribers. See advertisement.

THE OVERLAND MONTHLY for December comes to hand just as we are going to press. Its contents are: Isles of the Amazons, Part IV.; The Northern California Indians, No. VI.; Lost; Asphodel (poetry); Legend of the Montecito Grapevine; Arab Literature and Love Lore; Origin of our Antiquities; Winning the Race—In a Double Sense; Living Glaciers of California; John and Margaret (poetry); Ultrawa, No. III.—Bay Coast; The Building of the University; Etc.; Current Literature; Record of Marriages and Deaths on the Pacific Coast.

A MANUAL OF AMERICAN LITERATURE. A Text-Book for Schools and Colleges. By John S. Hart, LL. D. Philadelphia: Eldredge & Brother, 1873.

A volume of 641 pages of fine print. As a book of reference it will be very serviceable and useful; but we doubt very much that it will ever be used largely as a text-book in literature, for no school will find time to wade through such an extensive mass of material. The author's conception of a text-book on literature is evidently a very broad one. In our opinion, a text-book on literature should contain biographies of the most prominent writers, and extracts of their very best productions, to cultivate the taste of our pupils, which can be more effectually done by the careful reading and study of a few select pieces of classical authors than by mere catalogued facts, void of educational elements. The author deserves great credit for having collected so much material fer the future historian on American literature.

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THE

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JANUARY, 1873.

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[*For the California Teacher.*]

ARITHMETIC.

[*By Franz Wiedemann, Teacher of Elementary Studies in the Fourth Public School, Dresden. Translated by Mrs. Lane.*]

THE programme of instruction for the public schools of Dresden devotes three hours each week to the study of arithmetic. It is, of course, understood that this time is to be divided into lessons of suitable length.

If there be one branch of the mental training of the schoolroom which, more than any other, requires a *thorough foundation*, this is certainly arithmetic. Without such foundation it is as vain to expect suitable and good progress to be made, as to demand skillful painting from one who cannot draw a straight line. "Slow and sure" should be the motto for this study in our primary classes. Neglect of this principle will revenge itself, if not on the first teacher, most surely on her immediate successors.

Since the young pupils on entering the schoolroom bring with them no clear idea of numbers, a few, at most, being able to count a little mechanically; since the study of the science of numbers is one of the most difficult of mental operations; since it is not every one who has a talent for it and since it is necessary that the first steps should be made very clear and should be most thoroughly learned, we should, therefore, in the lower

classes especially, guard against allowing instruction in this study to cover too much ground.

I speak from experience when I maintain that it is not demanding *too little*, if, with three hours' instruction each week, the pupils learn during the first school year to understand and to perform *correctly* and *rapidly* any and all operations on numbers 1 to 10, of the four rules of arithmetic. If any teacher considers this too low an aim, let him remember that *all* the pupils are to be brought thus far; that they are to learn this *thoroughly*, and that they are to *understand clearly* what they do. To count thus far, forwards and backwards, and to add and subtract a little, is soon learned; but to develop a clear idea of the *meaning* of what they are doing, is something more than teaching a little counting, addition, and subtraction. Not only satisfaction, but rejoicing in the future, awaits such a mental discipline in the child's first school year.

II. MENTAL AND WRITTEN ARITHMETIC.

The next question which arises is, Shall the child be taught *written* arithmetic? I answer, Yes, by all means.

a. The use of a slate is an agreeable change to the child. What he has repeated in thought and speech, he now sees represented in certain forms.

b. Reckoning upon the slate is a kind of recreation for the child. The pupil does not need to think so closely as in mental calculation, where he is required to give undivided attention. Moreover, we need not grudge the teacher's lungs a little respite.

c. There is a special advantage in allowing the child to use the slate, inasmuch as here he learns to walk alone—to reckon for himself.

d. Where the use of the slate has been taught in the lowest class, greater progress can be made in the higher classes where the teacher has only to build on the foundation already laid.

Mental arithmetic must, however, always hold the first place in importance. In every-day life and in the whole school-course, it is the principal thing, and hence it should also be the principal thing in the elementary training.

III. MEANS OF CULTIVATING SENSE-PERCEPTION IN ELEMENTARY ARITHMETIC.

Three things are necessary to thorough and successful instruction in primary classes: (1) Perception by the senses or sense-perception; (2) sense-perception and (3) still again sense-perception. Fortunately, means for this are easily supplied.

Firstly, we have stationary numbers on wall-maps or charts; here the numbers, from 1 upwards, are represented by figures, dots, straight lines, or any other marks.

Secondly, movable representations of numbers, as in the common abacus of the schoolroom.

In the former, the number is fixed, in the latter, it must be made; and since the child always has a better idea of what he himself has put together than of what is presented to him as a whole, even if the different parts be pointed out to him, the abacus is therefore to be preferred to the chart or the table of figures.

Some improvements in the abacus are desirable; first, the wires should be movable, so that a larger or smaller number of balls could be ranged beside each other at pleasure; second, the balls, which are generally too small, should be at least two and a half inches in diameter, so as to be easily distinguished at the farthest part of the room; and to further aid the eye, the balls should be alternate white and black.

Every schoolroom should be furnished with both figure-chart and abacus, for even in learning arithmetic variety is pleasing and beneficial, and this is so true that the teacher may increase her resources of illustration (even at her own expense) with great profit. The little boy, whose roving eye betrays that the oft seen balls of the abacus have to-day no charm for him, may readily fix his gaze upon the box of gaily-painted soldiers, that, leaving their ambuscade in your desk, maneuvre the lesson of the day into his listless mind; or the rattling marble in his pocket may give you the key to his attention; with a little consideration of age and sex, such resources may long be made a useful aid to the teacher.

IV. METHOD OF TEACHING ARITHMETIC.

Instead of first teaching to count from 1 to 10, and then to add from 1 to 10, etc.; I first take the number 2, then the number 3, then 4, and so on, counting as far as each, adding, subtracting, multiplying and adding each, in every way possible without using any figure not yet reached.

In this method there are ten steps for mental reckoning and twelve for slate exercises, thus:

A. Mental exercises (take the number 3, for example):

1. Making the number. (1+1+1.)
2. Counting forwards. (1, 2, 3.)
3. Counting backwards. (3, 2, 1.)
4. Addition. (2+1. 1+2.)
5. Subtraction. (3—1. 3—2. 3—3.)
6. Multiplication. (3×1. 1×3.)
7. Analysis. (3=2+1. 3=1+1+1.)
8. Division. (3÷3. 3÷2.)
9. Comparison. (3 is 1 more than 2; 2 more than 1.)
10. Illustration problems. (Charles had 2 slates and has bought 1 more; how many slates has Charles now?)

B. Slate exercises.

11. Most of the above exercises, with various marks.
    (| | + | = | | |· | + | | = | | |·)
12. The same in figures. (2+1=3. 1+2=3.)

It is considerable work to thoroughly go through these exercises on every number from 1 to 10, but it can be completed in the first school-year, and, being done, we may be assured that the pupils will not only have a satisfactory idea of these numbers, but will also have laid a good foundation for their future progress in arithmetic.

V. SHALL FIGURES BE TAUGHT IN THE FIRST SCHOOL-YEAR.

Various authors maintain that *figures* should not be taught in the lowest grade, because the children do not seem capable of comprehending the signification of the figure.

I hold a different opinion. The youngest pupils may be taught the figures, but, of course, only after many and various illustrations and operations on groups of units have given them

a clear idea and comprehension of the value of the corresponding figure. Those who oppose the teaching of figures will admit that there must be an end to straight marks, dots, etc.; that they are hardly available beyond 20. When shall figures be introduced? You may answer after the little learners have become familiar with all the operations from 1 to 10. But, if you are going to teach thoroughly, it will not suffice to say that the figure 8, for instance, represents eight ones or eight units, but you must return to the beginning and repeat your whole course of instruction.

I doubt, moreover, if it be beyond the mental power of children to observe and comprehend that the figure 2 signifies two units (straight marks, dots, etc.,) the figure 6, six units, and the figure 10, ten units. Do we not think them capable of comprehending things much more difficult? Have they not to observe and learn the *sound* which more than fifty different figures (capitals and small letters) signify? Do the letters l, d, z, convey to them the least idea in what position the mouth must be placed, or what sound it must produce? When we show them a cube, are they not to observe how many sides and angles it has? And even when we speak to them of the Highest, whom they cannot see, do we not cause them to create in their souls an image of their Heavenly Father?

I do not, therefore, find that there is any harm in teaching figures to the youngest scholars, provided their minds have been prepared beforehand to understand them. For instance, before being taught the figure 3, let the idea of the number three be well illustrated on the blackboard and with objects, and well digested in their minds.

That I may not be misunderstood, I will remark that I do not intend to say that so soon as the little scholars have learned, for example, the figures from 1 to 6, that they shall henceforth *always* and *only* use figures. Lines, dots, and objects will always remain the material for sense-perception; but the use of figures is combined therewith, and may be offered both as a change and a reward to the pupils.

VI. PRACTICAL ILLUSTRATION OF THIS METHOD.

The Number One. A.—Mental Exercise.

I. *Illustrating the Number One.*—How many stoves are there

in the school-room? There is one stove in the school room. How many teachers are speaking to you now? One teacher is speaking now. How many desks does the teacher have? The teacher has one desk.

How many heads have you. (How many noses, mouths, throats, etc.)

I hold up one finger. How many fingers is that? Each of you hold up one finger. Repeat: That is one finger. (The same with the hand, arm, etc.)

I now bold up other objects—a knife, a pen, a pencil, a book, a watch, etc.

Now on the blackboard I make one straight line, one dot, one ring, one cross, draw hastily one tree, one house, one bird, etc., asking each time how many marks is that, how many dots, houses, etc.

II. *Subtraction.*—I write one straight line. How many lines are there? I erase the line. How many lines were there at first? How many have I erased? How many are left now? (The same with dots, rings, etc.)

If I make just one cross on the blackboard and then erase one cross, what is left? We can also say: one from one leaves nothing. Repeat that after me.

III. *Illustrative Problems.*—Freddy had one slate-pencil in his pocket when he started for school; on his way to school he lost one slate-pencil. How many slate-pencils had he left?

Lizzie's mother gave her one biscuit; a little while afterwards she ate one biscuit. How many biscuits had she left?

Alfred had one little heifer. How many? When the heifer was large enough, his father had it killed. How many heifers did he have killed? How many heifers did Alfred have left?

Emma had one apple in her pocket. How many apples? She met a hungry child and gave him one apple. How many? How many did she have at first? How many did she give away? How many did she have left then?

B.—Slate Exercises.

I. *Illustrating the Number One.*—Make one straight mark one dot, one ring, etc.

II. *Subtraction.*—Make one straight line. Erase it. What remains? (Rings, dots, etc.)

III. *The Figures.*—When grown people reckon, they often use a pencil, or a pen, or a piece of chalk. But grown people do not make straight lines, or dots, or rings, but they make figures. I will show you some figures such as grown people make. (I write from 1 to 10.) See, these are only figures. But every one of these figures has a meaning. What they mean you shall learn pretty soon. But now listen to me:

A large boy wanted to write how many satchels, slates, caps, coats, and picture-books he had. He had only one satchel; and now I will show you a figure that he wrote which meant one. He wrote this: 1. He had only one slate, so he wrote again, 1; etc.

This figure, then, means one thing—one thing only; one horse, one house, one fish; therefore, we name this the figure one. What do we name it? What do we mean by a one? How many does it mean?

Then, instead of one straight line, (dot, etc.,) what can I write? Now, try on your own slates if you can make such a figure one as grown people make.

There must also be some one's in your reading books; see if you can find any.

N. B.—This is as far as you can go with the number one without getting beyond the comprehension of the children.

THE NUMBER TWO.

I. *Composing the Number.*—Show me one hand. How many hands are there? There is one hand. Can you show me one hand more? Repeat: there is one hand more. How many hands are there now? How many hands have you, then? We have two hands. The same exercise with arms, eyes, cheeks, ears, etc.

Edward, come here. (He stands before the class.) How many boys are here? Henry, come here, also. How many boys are here now? The same with fingers, pencils, books, caps, etc.

How many ears has a cat? A cat sometimes catches a little mouse. How many ears does the mouse have?

Next make one straight line on the blackboard. How many lines have I made? Another straight line. How many lines

have I made this last time? You have made *one* line more. How many lines have I made in all? You have made *two* lines. Then how many lines are on the blackboard now? How many lines do you see? The same with dots, rings, etc.

Clap your hands together twice. Rap twice on your seats.

II. *Counting Forwards.*—I place one soldier on the desk, and at a little distance, two soldiers. How many soldiers are here? Two. Repeat; there is one soldier, there are two soldiers.

The same exercise with balls on the abacus, and with other objects.

Blackboard.—I write one dot, and at a little distance, two dots. How many dots are here? One. How many here, two. Now, we will count quickly: one, two. What comes first? One. What next? Two.

We have now counted. What have we done? Because we first said the *smaller* number, one, and then the number that means more than one, two, we say we have counted *forwards.* What do we say? Now, count forwards once more. Again, louder.

III. *Counting Backwards.*—Watch closely what I am going to do. How many balls have I here? Two. How many here? One. How many came first. Two. How many next? One. When we count this way, which number must we take first? Two. Which then? One. So, now we count two, one. Count that way yourselves. This time we have said the *larger* number first, and then the smaller, have we not?

The same with other objects. Repeat this many times, always with new objects.

On the Blackboard.—How many crosses have I made here? Two. How many here? One. Which do we take first, the most crosses, or the fewest? The most. And then? The fewest.

When we count this way, first saying the greater number, and then the smaller, we count *backwards.* What do we do? You may count backwards once.

The same with other marks.

Now let us see if we can count *forwards* again. Give attention to what I write on the blackboard. (| — | | .) Count. Look again. (| | — | .) How must you count this? Backwards. Count.

Close your eyes. Keep them shut close together, Charlie. That's right. Now count forwards. Right. Open your eyes. Who will count forwards alone for me? Who will count backwards? Harry will. But Harry must turn his back to the board so that he cannot see the lines. Watch him and see that he does not look at the board. I think Freddy would like to try to do it. Would he not? No? Then all count forwards. Backwards. Who would like to count alone right loud? Who can count louder still?

It would be useless to take up more space with these exercises: enough has been said to give an idea of the manner and the method.

IV. *Addition.*—Hold up one hand. How many hands are there? Hold up one hand more. Repeat: here is one hand more. How many hands are there in all? Repeat: One hand and one hand more are two hands.

The same with other objects; but always let the answers be given in a complete sentence, thus: One finger and one finger more are two fingers. One soldier and one soldier more are two soldiers. One ball and one ball more are two balls.

On the Blackboard.—What have I made on the blackboard now? (One ring.) What have I made again? (One ring more.) How many rings are there in all? One ring and one ring more are two rings. Repeat it after me. One line and one line more are two lines. One dot and one dot more are two dots. One cross and one cross more are two crosses.

But we can say this a shorter way; we can say, one and one are two. What can we say?

V. *Subtraction.* How many fingers am I holding up? Two. How many fingers are there then? Two. Now, watch carefully. (I bend one finger slowly down.) Are there two fingers now? No. How many are there? One. How many fingers have I taken away? One. How many fingers remain then if you take one finger from two fingers? When you take one finger from two fingers, one finger remains.

The same with other subjects.

We can say this a shorter way, also; we can say: one from two leaves one; or: two less one is one.

Two boys. How many boys do you see by me? Two. I

will put one of them behind the door. How many do you see now? One. How many boys less than there were? One. How many were there at first? Two. When there is one boy less there is only one boy; so we can say: two boys less one boy leaves one boy. Repeat that. Or we can say it shorter: two less one is one. How can we say it?

Look at something quite new which I am going to show you. How many books have I in my hand? Two. I lay them away one at a time. How many books have I in my hand now? Not any. How is that? Because you have just put them away. How many books did I have? Two. And how many have I laid away? Two. And how many books are left? None. Then if I have two books and take two books away, how many books have I left? None.

Boys, pencils, rulers, etc.

We can say this shorter, also: we can say, two from two leaves nothing; or, two less two is nothing.

On the Blackboard.—How many apples have I drawn? Two. How many have I erased? One. How many are still there? One. (Draw trees, stars, etc.) As before: one from two leaves one.

How many straight lines have I made now? Two. How many have I erased? Two. How many are still left? None. (Dots, rings, etc.) As before: two from two leaves nothing.

Review.—How many are left when you take two away from two? How many when you take only one from two? When you take one from one?

VI. ANALYSIS OF THE NUMBER.

How many balls are on this corner of the abacus? Two. The two balls are so close to each other that they look as if they had grown together, do they not? But look, I can separate these into two parts. How many are in this part? One. And how many in the other part? One. If I shove them together we shall have a whole two again. So the number two is made of two parts. Of how many parts is two made? Each part is one ball; therefore I can say, two balls is one ball and one ball more. (Pencils, etc.)

We can say this shorter: we can say, two is one and one more.

Blackboard.—Make two straight lines. How many lines do you see? I will tie them together so that it will be a whole two. (II) Into how many parts could we divide this two? Into two parts. Let us do it. (| |) Of what is this two made? Of one and one.

VII. MULTIPLICATION.

We have seen that two is made from one and one. I will show it to you again. (Two balls close together.) That is a whole two. (Separate the two balls.) How many balls are here? One. How many here? One. Then there is one here and one here; there is only *one* ball each time. *Here* is once one ball, and *here* is once one ball. How many times, then, can you see one ball? Two times. And two times one ball are how many balls? Two balls. Repeat after me: Two times one ball are two balls. We can also say it shorter, thus: two times one are two. Repeat that after me. (The same with blocks, etc.)

On the Blackboard.—I make a ring on the blackboard. How many rings have I made? You have made one ring. How many times have I made one ring? You have made one ring once. So that is once one ring. (Make another ring.) How many times have I made one ring now? You have made one ring two times. And two times one ring are how many rings? Two times one ring are two rings. Said shorter it is thus: two times one are two. Repeat it after me. Once more. Once again.

VIII. DIVISION.

James, come here to me. Take these two pencils; hold them up high. How many pencils has James? Two. Charles and John, come here. You shall divide these pencils between you. How many pencils has James? Two. How many boys are to divide these pencils between them? Two. Divide them. Hold them up high so that we can see how many each one has. How many has Charles? One. How many pencils has John? One. Then when two boys divide two pencils between them, how many does each boy receive? One. Repeat this together: If two boys divide two pencils between them, each boy receives one pencil. (Balls, slates, pens, etc.)

Result: When two is divided by two, each has one.

Blackboard.—Draw two apples not very near together. How many apples are there? Two. Frank and Willie come here; you may divide these two apples between you. How many apples are there? Two. How many boys are to divide these two apples between them? Two. Now divide them. How many will Frank have? One. Let him put his finger on his apple. How many can Willie have? One. Let Willie put his finger on his apple. When two boys divide two apples between themselves, how many apples does each receive? One. When two is divided by two, each has one. Repeat it again.

IX. COMPARISON.

I call out two children and give one ball to one and two balls to the other. How many balls has Lizzie? One. How many has Mary? Two. Who of the two has the most? Mary. How many balls has Mary? Two. And Lizzie has only how many balls? One. How many has Mary more than Lizzie? Mary has one more. Then the one that has two has one more than she that has one. Repeat that after me. The one that has two, etc. How many more is two than one? Two is one more than one. (The same with other things.)

Now tell me who of the two little girls has the least number of balls? Lizzie. How many balls has Lizzie? One. How many balls has Mary? Two. How many balls has Lizzie less than Mary? Lizzie has one less. Then she that has one ball has one ball less than she that has two balls. Repeat: she that has one ball, etc. How much less than two balls is one ball? One ball is one less than two balls. We say it shorter in this way: one is one less than two.

Blackboard.—(Make one straight line, and at a little distance two straight lines.) How many lines are here? One. How many there? Two. How many more lines there than here? One. Then two lines are how many more than one line?

Result: two is one more than one.

I draw one tree and at a little distance two trees. How many trees are here? One tree. How many there? Two trees. How many less trees here than there? One tree less. One tree, then, is how much less than two trees? One tree is one tree less than two trees. Shorter: one is one less than two.

X. ILLUSTRATIVE PROBLEMS. A. MENTAL EXERCISES.

a. Addition.

Charles had one slate, and his father gave him one slate more; how many slates had Charles then?

Julia ate one cake at breakfast, and one cake at dinner; how many cakes did Julia eat in all?

Bertha broke one plate yesterday, and to-day the careless little girl broke another plate; how many plates did she break in all?

b. Subtraction.

In a garden were two apple trees; the wind blew down one of the apple trees; how many apple trees were left standing?

There were two oranges on a plate; Thomas ate one of the oranges; how many oranges were still left on the plate?

Anna had two pins in her shawl; she gave one pin to Susie; how many pins had Anna remaining?

c. Multiplication.

Alfred went fishing, and twice he caught one fish; how many fishes did Alfred catch in all?

Emma has twice lost a needle; how many needles has Emma lost in all?

A soldier has twice fired a shot; how many shots has he fired in all?

d. Division.

Ida and Ella had two apples given them to divide between them; how many apples will each have?

If two little boys divide two marbles between them, how many marbles will each boy have?

The stable man has bought two measures of oats to divide between two horses; how many measures of oats must he give to each horse?

e. Comparison.

Benjamin had one picture-book and Jacob had two picture-books; how many more picture-books had Jacob than Benjamin?

Fanny had two nuts in her basket and Rosa had one nut in her basket; which of the two little girls had the fewest nuts? How many less nuts had Rosa than Fanny?

Mr. Smith has two horses and Mr. Jones has also two horses; which of them has the most horses?

B. SLATE EXERCISES.

a. Composing Numbers.

Make one straight line. Make one other straight line. How many straight lines have you made? (Dots, crosses, etc.)

b. Counting forwards.

Make one dot. Make two dots a little way from the one dot. How many dots stand first? How many next? One, two. (Rings, etc.)

c. Counting backwards.

Make two crosses on your slates. Make one cross a little below the two crosses. How many crosses stand first? How many next? Two, one.

d. Addition.

If the children are to reckon on their slates in the four rules from 1 to 10 it is necessary for them to become acquainted with the four signs: $+ - \times \div$. This should be taught immediately with the operations on the number two. I tell them that $+$ means "and" or "add to;" that $-$ means "to take away," and is read *minus;* that $\times$ means so many times as the number expresses which stands next to it; that $\div$ means we are to divide; and that $=$ means is, are, remains, etc., and is read *equal.*

Although they do not learn immediately, and perhaps not readily, what these signs mean, yet, as a general thing, they learn them after a little time without much trouble.

For example: make one straight mark; then make a cross; then another straight mark; then $=$. How are you to read this example? One straight mark and one straight mark are. And how much are one and one? Two. Very well; now write these two straight marks at the end: | |+| = | |. (Dots. rings, etc.)

e. Subtraction.

Make two dots near together; after them make a short horizontal line (—); after that make one dot; then make two horizontal lines after the one dot. Tell me what the one horizontal line means. It means take away. Read the example to me. How many shall we take away? One. From what shall we take away the one dot? From the two dots. How many dots will remain? We will write the number of dots that remain after the two horizontal lines: .. — . = .

Of course the teacher is also to write all this, at the same time as the pupils, on the blackboard.

f. Analysis.

We have already learned what makes the number two. What is the number two made of? One and one. We will now make the number two on the blackboard and slates. Make two straight marks; after them make two short horizontal lines. What is it that makes the number two? We will write that next. First make one straight mark. What sign means "and?" A cross. Make such a cross. Now it is read "two is one and." What must we add to that? One straight mark more. Make it. Let us read this example: | | = | + | .

g. Multiplication

How many was two times one? Two. Let us write that on the slate. Make two straight marks. That is a two. Now we will make a cross of two slanting lines. (×) This cross tells us that we shall take some number as many times as the number that stands before the cross. In short, this sign means "time" or "times." Tell me what you have on your slates now? Two times. Now make one straight mark more, and after it two short horizontal lines. Read what you have on your slates now. Two times one is. Tell me how much is two times one? Two. Very well. So we have only to put two more straight lines at the end of what we have written and it is finished. Read the whole of what you have written. | | × | = | | .

b. Division.

Do you remember how much each one receives when you divide two things between two persons? One thing. When we wish to divide anything we make this sign: ÷. What does this sign tell us to do? To divide. Now, make two straight marks on your slates. These two marks are to be divided; therefore, what sign must we write after them? Two dots, with a horizontal line between them. These two marks are to be divided into two parts; therefore, after the sign you must write two marks and then two straight horizontal lines. How must you read what you have written? Two divided into two parts. How much will there be in each part? One. Then what must we write at the end? One mark. Read what you have written: | | ÷ | | = | .

XI. THE FIGURES.

Make two dots, rings, etc. How many dots are there? Two. Then that is the number two. But grown people write the number two another way; they write it like this: 2. How many does this figure (2) mean? It means two. Now write a two as grown people write it.

Again: how many hands have you? Two. If you wished to write that, how many straight marks would you have to make? Two. But your mother would write it another way. If she wishes to write that there are two eggs in the closet, she does not make two straight marks, but she makes the figure two, thus: 2. This figure means just the same as the number two or as two straight lines. It makes no difference whether we write two straight marks, two rings, two dots, or the figure 2.

WRITTEN ARITHMETIC WITH FIGURES.

a. Addition.

You have learned to make two figures; what are they? One and two. Let us try to write with these figures. Pay attention. I write: 1+1=. Read what I have written. One and one is. How much is one and one? Two. What figure must I write at the end? A two. 1+1=2. You may now write the same on your slates.

b. Subtraction.

I write the figure 2. How much does that figure mean? It means two. I write a horizontal line, thus, — after the figure 2. What does that horizontal line mean? It means take away from. I now write the figure 1 and two horizontal lines after it. How shall we read what I have written? Two, one taken away, is; or two minus one is. What remains when I take one away? One remains. Then what figure must I write at the end? The figure 1. 2—1=1. You may now read it.

c. Analysis.

What is it that makes two? One and one. Let us write that with figures. Make the figure 2. After the figure make two short horizontal lines, thus: =. You say two is made from one and one; how many ones must we then make after what we have already written? Two ones. Make them. I also make them, but write them purposely thus: 1 1. Read that. One, one. But it must be one *and* one. What sign must we put between the ones? A cross. Make a cross (+) between the figures. How must we read the whole of what we have written? Two is one and one; or, two equals one and one. 2=1+1.

d. Multiplication.

Let us now reckon how many two times one is. How much is it? Two. Let us first write it with straight marks, as we did before, thus: | | × | = | |. How do we read that? We will now try to write it in figures. What shall we write first? A figure 2. What next? The sign for "times." What next? A figure 1. How do you read that? Two times one. Now write two short horizontal lines. How much is two times one? Two. Then what must we write last? Two. 2×1=2. You may now write it on your slates.

c. Division.

Now we will divide; and let us try that, also, with figures. How was the sign of dividing or division made? Two dots

with a horizontal line between them. We want to divide two cherries between two boys. We must first write what we wish to divide: 2÷. How many boys are to divide them? Two. What figure must we next write? The figure 2. 2÷2. Read what we have now written. Two divided by two. Make two short horizontal lines. How many cherries will each boy receive? One cherry. Therefore, what figure must we write at the end? The figure 1. 2÷2=1. Very well. You may now write it on your slates.

The foregoing is sufficient to show the method to be applied successively to each number from one to ten. Such teaching is indeed a hard task for the teacher's voice; but the arithmetic lesson must ever be considered the hardest in the lower classes, for, added to the great strain on the teacher's vocal powers, it is very difficult to maintain order and the usual school discipline and at the same time to keep the young minds interested and enthusiastic in the lesson. Moreover, it looks more difficult on paper than it is in practice. Again, no method can be exactly suited to every teacher; the individuality of the teacher must always have scope; let the teacher only never neglect thoroughness, perception, and variety of application.

The following tables will give an idea of how the exercises on the slate should be performed, both with straight marks and with figures, taking the number six as an example:

A. WITH STRAIGHT MARKS.

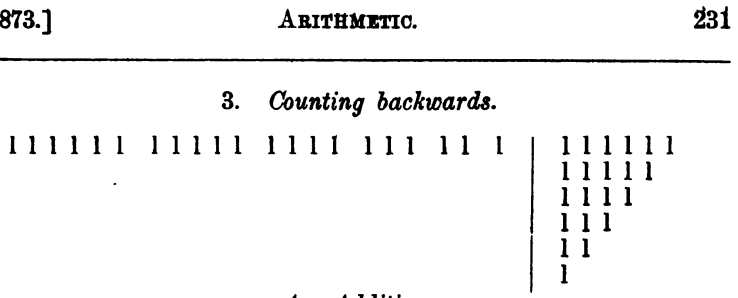
1. *Composing the number.*

1 1 1 1 1 1

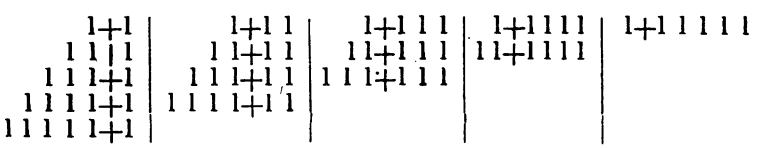
2. *Counting forwards.*

1	1
1 1	1 1
1 1 1	1 1 1
1 1 1 1	1 1 1 1
1 1 1 1 1	1 1 1 1 1
1 1 1 1 1 1	1 1 1 1 1 1

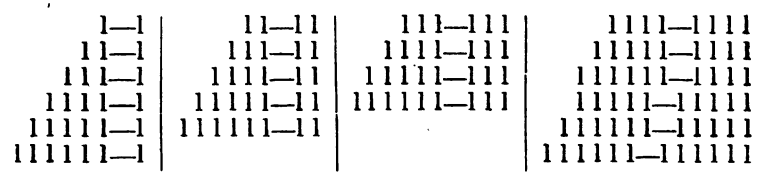
3. *Counting backwards.*



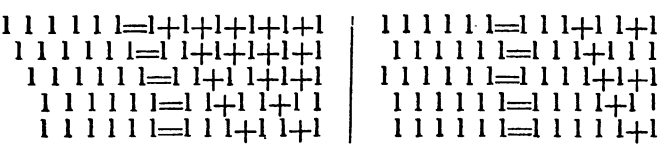
4. *Addition.*



5. *Subtraction.*

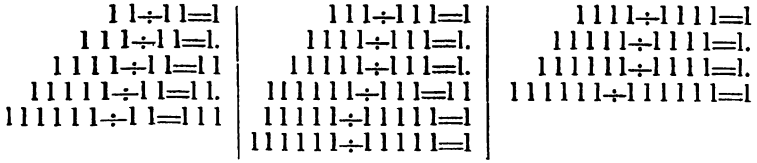


6. *Analysis.*



7. *Multiplication.*

8. *Division.*



9. *Comparison.*

11 is 1 more than 1	111 is 11 more than 1
111 is 1 " " 11	1111 is 11 " " 11
1111 is 1 " " 111	11111 is 11 " " 111
11111 is 1 more than 1111	111111 is 11 more than 1111
1111 is 111 more than 1	11111 is 1111 more than 1
11111 is 111 more than 11	111111 is 1111 more than 11
111111 is 111 more than 111	111111 is 11111 more than 1
1 is 1 less than 11	1 is 11 less than 111
11 is 1 less than 111	11 is 11 less than 1111
111 is 1 less than 1111	111 is 11 less than 11111
1111 is 1 less than 11111	1111 is 11 less than 111111
11111 is 1 less than 111111	
1 is 111 less than 1111	1 is 1111 less than 11111
11 is 111 less than 11111	1 is 11111 less than 111111
111 is 111 less than 111111	1 is 1111 less than 11111

B. WITH FIGURES.

a. *Writing of figures, thus :* 2=11; 3=111; 6=111111.

b. *Forwards :* 1, 2, 3, 4, 5, 6.

c. *Backwards :* 6, 5, 4, 3, 2, 1.

d. *Addition.*

1+1	1+2	1+3	1+4	1+5
2+1	2+2	2+3	2+4	
3+1	3+2	3+3		
4+1	4+2			
5+1				

e. *Subtraction.*

1—1	2—2	3—3	4—4	6—6
2—1	3—2	4—3	5—4	
3—1	4—2	5—3	6—4	
4—1	5—2	6—3		
5—1	6—2			
6—1				

f. *Analysis.*

6=I+1+I+1+1+1	6=3+2+1
6=2+1+1+1+1	6=3+3
6=2+2+1+1	6=4+1+1
6=2+2+2	6=4+2
6=3+1+1+1	6=5+1

g. Multiplication.

1×1	1×2	1×3	1×4
2×1	2×2	2×3	1×5
3×1	3×2		1×6
4×1			
5×1			
6×1			

h. Division.

2÷2	3÷3	4÷4	5÷5	6÷6
3÷2	4÷3	5÷4	6÷5	
4÷2	5÷3	6÷4		
5÷2	6÷3			
6÷2				

i. Comparison.

6 is 1 more than 5.	1 is 5 less than 6.
6 is 2 " " 4.	2 is 4 " " 6.
6 is 3 " " 3.	3 is 3 " " 6.
6 is 4 " " 2.	4 is 2 " " 6.
6 is 2 " " 1.	5 is 1 " " 6.

Of course all these examples are to be given promiscuously, as well as in regular order.

C. ILLUSTRATIVE PROBLEMS.

A hunter went out to hunt. In the forenoon he shot 3 hares, and in the afternoon he shot 3 hares more. How many hares did he shoot that day?

I saw 4 little birds sitting on the roof of a house; after a while two more birds flew on the roof and sat beside them. How many little birds in all were sitting on the roof of the house?

Minnie had a flower garden. One morning she found 1 rose blossomed, and the next morning she found 5 roses more in bloom. How many roses did she find in all?

b. Subtraction.

In my garden there were 6 beautiful trees, but 4 of the trees have been cut down. How many trees remain in my garden?

I had 6 goldfishes in a globe, but 4 of them have died; how many goldfishes are left in the globe?

The old hen had 6 chickens, but a fox caught 5 of them; how many chickens did the poor old hen have left?

c. Multiplication.

George had two marbles with which he was playing. Freddy went running by and called out, Oh, I have 3 times as many marbles as you! How many marbles had Freddy?

Annie said that 3 times 2 are 6; but Jennie said 3 times 2 are 5; which of the two little girls was right?

James was going down the street and saw some boys' coats for sale in the window. I know how much one of these coats costs, said he to the man; it costs 1 dollar; no, said the man, it costs 6 times 1 dollar. Can you tell how much one of those coats would cost?

d. Division.

A mother had two little children; one day she brought home 6 apples to divide between them; can you tell me how many apples each little child received?

A teacher had 6 picture books to divide among those scholars who were very good in school; but there were only 3 good children that day, so she had to divide the 6 picture books among those 3 good children; how many picture books did each get?

Uncle John loves little boys very much, and one day he bought 6 balls to divide among 6 little boys whom he knew; how many balls did he give to each boy?

After the pupils have in this manner been brought as far as the number ten, other exercises on numbers learned may be introduced; and these, as well as all others, it is well for the teacher to prepare beforehand on paper.

Examples:

1. When I have 3, how many are wanting to make 5? When I have 7, how many are wanting to make 10? When I have 5, how many are wanting to make 8?

2. *Place of the Figures.*

a. After 1 comes 2, after 2 comes 3, after 3 comes 4, etc.

b. Before 10 comes 9, before 9 comes 8, before 8 comes 7, etc.

c. What follows 3 ? what follows 6 ? 8 ? 9 ?

d. What comes before 4 ? before 7 ? before 9 ? before 10 ?

e. What number stands between 2 and 4 ? between 6 and 8 ? between 9 and 10 ?

f. Between what numbers does 3 stand ? 5 ? 7 ? 9 ?

3. *Value of the numbers.*

a. What number is one greater than 4 ? than 6 ? than 9 ? What number is two greater than 2 ? than 4 ? than 6 ? than 9 ? What number is three greater than 2 ? than 4 ? than 6 ? etc. What number is 4 greater ? 5 greater ? etc.

b. What number is one less than 3 ? than 7 ? than 9 ? What number is 3, 4, 6, etc., less than 7 ? than 9 ? than 10 ?

While resorting continually to sense-perception objects in reckoning—such as dots, lines, abacus-balls, etc.—never forget that the ten fingers of the child are the best apparatus of all.

In these mental exercises the children must be animated but quiet. Do not allow them to answer in too low a tone. The answers should always be given in complete sentences. Let the right answer sometimes be given in chorus, sometimes individually. Let the teacher be animated and spare no words; when tired, rest, and busy the children with some quiet occupation. Be patient, and do not think because you know immediately how many 3 times 3 are, that the child also must answer immediately. Never despair of those who are dull, but work with them hopefully ; I have found more "stupid" children in arithmetic than in any other study of the primary classes. To some children who learn other things well, it is almost impossible to teach how many 2 and 1 are ; and others seem to be totally wanting in the capacity for learning numbers, as we find grown people with absolutely no ear for music.

DEPARTMENT OF PUBLIC INSTRUCTION.

Some teachers appear to labor under the impression that after the 1st of January, 1873, when the new school law goes into effect, there will be a change of text books. But the fact is, that even if a change were thought advisable, there can be no change until after the expiration of four years from July 12th, 1870, the date when the text books now in use were adopted. The only question with us has been, whether cities and incorporated towns which, according to the new law, are excepted from the uniform State series of text books, would be excepted on the first day of January, 1873, or only after the expiration of the four years above spoken of. The question was submitted to the Attorney General, and the following is his decision :

OFFICE OF THE ATTORNEY GENERAL OF THE STATE OF CALIFORNIA,
SACRAMENTO, December 17th, 1872.

HON. H. N. BOLANDER, Superintendent of Public Instruction.

DEAR SIR : Your communication of yesterday has been received and considered. In answer to your inquiry, it is my opinion that Boards of Education of incorporated cities and towns will have no power to change the series of text books adopted by the State Board of Education, in 1870 and 1871, until the four years from the time of their adoption have expired. The State Board itself cannot change a series before that time, and it is clear that other Boards cannot.

The School law incorporated into the Political Code, and which goes into effect January 1st, 1873, is merely a continuation of the school law now in force, and will not have the effect of a new enactment. (See Sec. 5, Political Code.)

Sec. 1,874 provides that "any books, once adopted as part of a uniform series, must be continued in use for not less than four years." This is a continuation of a portion of Sec. 88 of the present school Act, is in full force and effect, and will continue to be so after January 1st, 1873 ; so that the authority conferred by subdivision five of Sec. 1,521 cannot be exercised by the city Boards of Education to change the text books, now a part of the uniform State series, until the expiration of the four years from the time they were adopted. I think this is the plain and evident meaning of the law.

Yours, very truly,

JOHN L. LOVE, Attorney General.

For the information of those interested we shall give the text books authorized by the State Board of Education, and their date of adoption :

Reading—McGuffey's Series of Readers, July 12th, 1870.

Spelling—Willson's Primary and Larger, July 13th, 1870.

Arithmetic—Robinson's Series (except Intellectual), July 12th, 1870.

" Colburn's Intellectual, September 29th, 1870.

Grammar—Brown's Series (re-adopted), July 13th, 1870.

Geography—Monteith's Series (re-adopted), July 13th, 1870.

History—Swinton's Condensed U. S. History, June 13th, 1871.

Word Analysis—Swinton's, June 13th, 1871.

Physiology—Cutter's Smaller and Larger (re-adopted), July 13th, 1870.

The penalty for refusing or neglecting to use the text books adopted by the State Board of Education is given in section one thousand eight hundred and seventy-five of the Political Code: "If any city or district refuse or neglect to use the books that may be prescribed, or use any other text books in any of the prescribed studies, the Superintendent of Public Instruction must hold from such city, town, or district twenty-five per cent of all State school moneys to which it may be entitled until it comply; and any moneys so withheld must be apportioned by the Superintendent, at the next annual apportionment, in the same manner as other school moneys in the Treasury."

NIGHT Schools have been established in Sacramento City. A move in the right direction. All cities and large towns ought to do the same.

THE SOLANO TEACHERS' ASSOCIATION, held in Suisun December 5th, was attended by nearly every teacher in the county, and the exercises were interesting and profitable to those who participated.

THE TEACHERS' INSTITUTE OF BUTTE COUNTY met at Chico on December 4th, and held a three days' session. It was well attended, there being over thirty teachers present. The exercises were varied and instructive, consisting of practical illustrations of methods of teaching, essays, etc. The State Superintendent and S. S. Boynton were the lecturers. From the resolutions adopted we cull the following:

Resolved, That to R. H. Allen be presented the thanks of the Institute for the clear manner in which he has elucidated the principles of book-keeping.

Resolved, That we tender our thanks to the citizens of Chico for the interest manifested in the cause of education by their attendance at the lectures and sessions of the Institute.

Resolved, That a failure on the part of teachers to attend the County Institute denotes a lack of interest in the cause of education, and may be properly regarded as unprofessional conduct; and as the law makes provision for teachers attending the Institute, it should attach a penalty for the failure to do so.

Resolved, That our most sincere thanks are due and are hereby presented to Hon. H. N. Bolander for his presence, the lecture of last evening, and the able, philosophical, and logical address of this morning's session.

Resolved, That the thanks of the Institute be tendered to H. T. Batchelder, County Superintendent, for the courteous and efficient manner in which he has presided over the proceedings of this body.

Resolved, That the thanks of this Institute are due to the Secretaries, O. E. Swain and Miss Mona Baker, for the able and interesting report of the proceedings of this Institute.

STATE UNIVERSITY.—Ex-Governor Haight has been unanimously elected to fill the vacancy in the Board of Regents occasioned by the death of Hon. Edward Tompkins.

DONATION.—At the last meeting of the Regents of the State University of California Mr. S. Nolan, Proprietor of the Belle View Nursery at Oakland, presented, in the name of his daughter Camilla, a duplicate of every kind of Plant grown in his large nursery. It may be stated in connection with this, that Mr. S. Nolan paid particular attention to our indigenous trees and shrubs, and that he always planted a specimen of each kind in his large garden, affording thereby an opportunity to lovers

of plants to see what plants will look like in an advanced state of growth. The donation was gladly accepted, and the sum of four hundred dollars voted to enable Prof. E. Carr to have the plants transferred to the University grounds, and there properly taken care of.

THE STATE BOARD OF EDUCATION

Met at the office of the Superintendent of Public Instruction, December 13th, 1872, at three P. M.

Present—Governor Booth, Superintendent Bolander, Messrs. Widber, Baker, Jackman, Jones, Leadbetter, Hill, and Robertson, and Dr. Lucky.

Absent—Mr. Lynch.

Governor Booth in the chair.

The minutes of the previous meeting were read and approved.

Dr. Lucky, from the Committee appointed to report rules and regulations for the government of Boards of Examination, submitted a report.

On motion of Mr. Jones, the report was recommitted to the Committee, with instructions to report at the evening session of the Board.

Mr. Bolander, from the Committee to report additional selections to add to the list of books for district libraries, submitted a report, which was laid over till the evening session.

Mr. Baker, from the Committee to report a plan for the uniform and systematic grading of the public schools, stated that it was impossible to adopt any plan until the new course of studies had been adopted. The plan must be based upon the course of studies, and he asked further time, which was granted.

On recommendation of the State Board of Examination, life diplomas were granted to the following persons:

Miss Minnie Graf, of San Francisco.
Miss S. A. Jessup, of San Francisco.
Mrs. F. E. Reynolds, of San Francisco.
Mrs. L. A. Morgan, of San Francisco.
Miss Carrie L. Smith, of San Francisco.
Miss Cornelia E. Campbell, of San Francisco.
Miss M. E. D'Arcy, of San Francisco.
Miss Frances Simon, of San Francisco.
A. J. Farley, of Alameda county.
Miss L. S. Templeton, of Sacramento Co.
F. Gates, of Santa Clara county.
S. M. Shearer, of Monterey county.
A. F. Olinger, of Santa Cruz county.
Miss S. J. Hodgdon, of San Joaquin.
Samuel T. Black, of Yuba county.
W. H. Fry, of Solano county.
J. N. Mackall, of Lake county.
T. B. White, of Nevada county.
Mrs. C. R. Watson, of Nevada county.

Satisfactory evidence having been produced that N. Furlong, the holder of a life diploma, had been guilty of immoral and unprofessional conduct, on motion, the life diploma heretofore granted to Mr. Furlong was unanimously revoked.

The question of having the Constitution of the United States and Constitution of the State of California published in connection with the School Law was referred to the Superintendent, with power to act.

On motion, adjourned to meet at half past seven o'clock, P. M.

EVENING SESSION.

The Board was called to order at half past seven P. M. by Superintendent Bolander. Governor Booth not being present, Mr. Baker, of Santa Clara, was, on motion of Superintendent Bolander, called to the chair.

Dr. Lucky presented the modified report of the Committee on rules and regulations for the government of Boards of Examination. A long debate followed the presentation of this report, during which Governor Booth arrived and took the chair.

On motion of Mr. Jackman, City and County Boards of Examination were instructed to forward the examination papers of all applicants for State certificates to the State Board of Examination.

Mr. Jones moved to fix the percentage for State certificates of first grade at eighty-five per cent.; of second grade at eighty per cent.; for county certificates of the first grade at eighty per cent., and of second grade at seventy-five per cent. On calling the roll the motion was lost by the following vote: Ayes—Lucky, Jones, Jackman, Hill. Noes—Baker, Widber, Robertson, Bolander.

On motion of Mr. Baker, the percentage of State educational diplomas was fixed at ninety per cent.; for State certificates of first grade, eighty-five per cent.; for second grade, eighty per cent.; for third grade, seventy-five per cent.

On motion of Mr. Jones, the minimum percentage for county certificates of the first grade was fixed at eighty per cent.; for second grade at seventy-five per cent.; for third grade at seventy per cent.

On motion of Mr. Baker, the State Board of Examination was instructed to furnish the same examination questions for all grades, so far as the studies are prescribed by law.

On motion of Mr. Jones, the State, City, and County Boards of Examination were instructed to examine applicants for State and county certificates of the third grade in the same studies as those of the second grades, respectively.

On motion of Superintendent Bolander, the following books [see below] were added to the books already prescribed for use in district libraries.

On motion, at half past ten, the Board adjourned to meet at the call of the Secretary.

HENRY N. BOLANDER, Secretary.

BOOKS ADDED TO THE LIST OF LIBRARY BOOKS.

BIOGRAPHY.

Life of Frederick the Great.
Everett's Life of Washington.
Eminent Statesmen, 6 vols.
Benjamin Franklin.
Daniel Webster.
Daring Deeds.
William Penn.
Henry Clay.
Noble Deeds.
Famous Generals, 6 vols.
General Washington.
General Taylor.
General Jackson.
General Lafayette.
General Marion.
Napoleon Bonaparte.

EDUCATIONAL.

McGuffey's Readers.
Willson's Readers.
Willson's Spellers.
Davies' Spellers.
The Elements of Intellectual Science—Noah Porter.
Mulligan's Structure of the English Language.
Modern Philology.
Business Arithmetic—by Bryant, White & Stowell.
Bernstein's Popular Treatise on Natural Science—1872.
Monroe's Fifth Reader.
Anderson's Historical Reader.
Hart's First Lessons in Composition.
Rolfe and Gillet's Natural Philosophy.
Hutchinson's Physiology.
Taine's English Literature.
Robinson's Series of Algebras.
Davies' Series of Algebras.
New Gymnastics for Men, Women, and Children—Dio Lewis.
Lock Amsdere, the Schoolmaster.
The Child, its Nature and Relations—by Mathilda H. Kriege.

Cavé—The Cavé Method of Learning to Draw from Memory.
Cavé—The Cavé Method of Teaching Color.
Greene's Common School Grammar.
Bullion's Grammar.
French's Series of Arithmetics.
White's Series of Arithmetics.
Eaton's Series of Arithmetics.
Colburn's Arithmetic and its Applications.
Colburn's First Steps in Numbers.
Guyot's Series of Geographies.
Steinwehr's Eclectic Geographies.
Swinton's Condensed United States History.
Scott's United States History.
Swinton's Word Analysis—Part II.
Swett's Questions for Written Examinations.
Swinton's Word Book—Part I.
The Scholar's Companion.
Oswald's Etymological Dictionary.
English Kindergarten, Practical Guide—by Johann and Bertha Rouge. Fourth Edition—London, '71.
Education—by Herbert Spencer.
Trench on the Study of Words.
Culture Demanded by Modern Life—Youmans.
Dame Nature and Her Three Daughtors.
Abbott's Gentle Measures in the Management of the Young.
Abbott's Science for the Young.
The Illustrated Natural History—by Rev. J. G. Woods.
The Rudiments of Colors and Coloring—Fields.
Chevrael on the Laws of Contrast and Color.
The Autobiography of a Lump of Coal, etc.
Murdoch and Russell's Orthopony.
Webb's First Lessons in Language and Drawing.

HISTORY.

Outlines of History—by E. A. Freeman, D. C. L.
Abbott's Illustrated Histories.
Vignettes of American History.

JUVENILES.

Walter's Tour in the East—Eddy.
Rollo Story Books.
Parley's Cottage Library—S. G. Goodrich.
The Oakland Stories—George B. Taylor.
Home Stories—F. S. Arthur.
The Hurlie Stories—Abbott.
The Florence Stories—Abbott.
Wonder Stories Told for Children—Hans Anderson.
Rainbow and Lucky Series—Abbott.
Marco Paul Series—Abbott.
Ingelow's (Jean) Studies for Stories from Girls' Lives.
Howitt's (Mary) Pictures from Nature.
Grimm's Household Stories.
The Girl's Own Treasury.
D'Aulnoy's (Countess) Fairy Tales.
Boys' Treasury of Sports and Pastimes.
Boys' Book of Trades, and the Tools Used in Them.
Andersen's (Hans C.) Stories for the Household.

Elm Island—6 vols.

Lion Ben of Elm Island.
Charlie Bell.
The Ark of Elm Island.
The Boy Farmers of Elm Island.
The Young Shipbuilders of Elm Island.
The Hardscrabble of Elm Island.

Frontier Series—5 vols.

Twelve Nights in the Hunter's Camp.
1,000 Miles Walk across South America.
The Cabin on the Prairie.
Planting the Wilderness.
The Young Pioneers of the Northwest.

Helping Hand Series.

Climbing the Rope.
Billy Grimes' Favorites.
Actions Speak Louder than Words.

Royal Club Series—2 vols.

Changing Base, or What Edward Rice Learnt.
Double Play, or Joe Hardy Chose His Friends.

Tone Masters.

Mozart and Mendelssohn.
Handel and Haydn.
Bach and Beethoven.

Young Dodge Club—6 vols.

Among the Brigands.
Others in Preparation.
One Syllable Books.
Series of Popular Juvenile Works—Mary Howitt.
The Boy's Own Toy Maker.
The Boy's Playbook of Science—Routledge & Sons, London.

Album Library—4 vols.

The Children's Album.
The Children's Sunday Album.
Off the Sea.
The True Robinson Crusoes.
Famous Ballantyne Books—6 vols.
Fireside Library (Hans Anderson)—8 vols
Georgie's Menagerie—6 vols.
Gypsy Series—4 vols.
Glance Gaylord Series—3 vols.
Library of Adventures on Land and Sea—6 vols.
My Favorite Library—12 vols.
Percy Family—5 vols.
Peep of Day Series—4 vols.

New Prize Library—6 vols.—Boys.

Both Sides of the Street.
Tom Bentley.
Captain John.

The Cruise of the Dashaway.
The Little Spaniard.
Salt Water Dick.
Little Maid of Oxbow.
Katie's Stories for Young People—6 vols.
Katie's Three Wishes.
Katie's Aunt Ruth.
Katie's Summer at Cedarwood.
Katie's Soldiers.
Katie's Harvest Days.
In the Ranks.
Little Agnes Library for Girls—4 vols.
Little Agnes.
Trying to be Useful.
I'll Try.
Art and Artlessness.
Little Anna Stories—6 vols.
Little Anna.
Alice Leamont.
A Thousand a Year.
Estelle's Stories about Dogs.
The Cheerful Heart.
The Little Helper.
Pleasant Cove Series—6 vols.
Arthur Brown.
The Young Deliverers.
The Cruise of the Casco.
Others in Preparation.
Proverb Stories—6 vols.
Birds of a Feather.
Fine Feathers do not Make Fine Birds.
Handsome Is that Handsome Does.
A Wrong Confessed is Half Redressed.
One Good Turn Deserves Another.
Whole Armor.
Snail Shell Harbor.
Isaac Phelps.
New Prize Library (Girls)—6 vols.
Moth and Rust.
Kept from Idols.
Queen Rhoda.
Into the Highways.
Faithful in Least.
Charity Hurlburt.
MacDonald Series.
Orient Boys.
Lyle McDonald.
Whispering Pine Series—6 vols.
The Spark of Genius.
The Sophomore of Radcliffe.
The Whispering Pine, or the Graduates of Radcliffe.
The others in preparation.
Wonderland Library—5 vols.
Alice's Adventures in Wonderland.
The House on Wheels, or the Stolen Child.
Letters Everywhere.
The Inn of the Guardian Angel.
The other in preparation.
Dick and Daisy Series—4 vols.
Adrift in the World, or Dick and Daisy's Early Days.
Fighting the Battle, or Dick and Daisy's City Life.
Saved from the Street, or Dick and Daisy's Proteges.
Grandfather Milly's Luck, or Dick and Daisy's Reward.

MISCELLANEOUS.

Hayes' Land of Desolation.
Biart's Adventures of a Young Naturalist.
Belcher's (Lady) Mutineers of the Bounty.
Palgrave's Gems of English Art of the Nineteenth Century.
Girlhood and Womanhood.
Papers for Thoughtful Girls.
Familiar Quotations.
Ocean Life Series.
The Provincial Letters of Blaise Pascal.
Spider Spinnings, or Adventures in Insect Land.
On the Seas.
Lamb's (Charles) Complete Works.
Works of Alex. Von Humboldt.
Handbook of Proverbs—Bohn.
Half Hours with the Best French Authors.
History of Civilization—Guizot.
Representative Men of the Pacific.
The Natural History of Commerce.
Raw Material—John Yeats (Eng.)
The Technical History of Commerce, Manufactures.
Growth and Vicissitudes of Commerce—by John Yeats.

POETRY.

Lowell's (James Russell) Poems.
Hood's (Thomas) Poems.
Rogers' (Samuel) Poetical Works.
Tennyson's Poems.
Holmes' Poems—2 vols.
Whittier's Poems—2 vols.
Wordsworth's (William) Poetical Works.

SCIENTIFIC.

History of a Pin.
The Microscope—by J. Hogg.
A Year at the Shore—by P. H. Gosse.
Pepper's (J. H.) Playbook of Metals.
Pepper's (J. H.) Playbook of Science.
Practical Floriculture—by Peter Henderson.
Manual of Zoology—by H. A. Nicholson.
History of the Inductive Sciences—Whewell.
Fragments of Science for Unscientific People, } Tyndall.
Light and Electricity, } Tyndall.
Hours of Exercise in the Alps, } Tyndall.
Spectrum Analysis—Schellen.
Treasury of Botany—Lindley & Moore.

First Book on Analytic Anatomy, Physiology, and Hygiene, human and comparative—by C. Cutter.
Science Primers, Physics and Chemistry—by Professor Balfour Stewart and Professor Roscoe, respectively.
Window Gardening—by H. F. Williams.
Geology of California, } State Geol. Survey
Birds of California, }
Prang's Natural History Series.
A Treatise on Ventilation—L. W. Leeds.
Agassiz and Gould's Zoology.
Natural History Picture Book—Reptiles, Fishes, and Insects.
Seaside Studies in Natural History—Agassiz.
Wild Animals and their Homes.
Our Feathered Companions, } Rev. T. Jackson
Our Dumb Neighbors, }
Our Dumb Companions.
Our Children's Pets.
Domestic Animals and Their Homes.
Clever Dogs, Horses, etc.—Hibberd.
Correlation and Conservation of Forces.
What the Wood Whispers to Itself.
Reclus. The Earth. A descriptive history of the phenomena of the life of the globe.
M. Schele de Vere. Wonders of the Deep (all his works).
Guillemin: The Heavens. An illustrated handbook of popular astronomy.
Lyell's Principles of Geology.
Mueller's Chip from a Workshop, and his other works.
Dana's Manual of Geology.
Hotz' First Lessons in Physics.
Kingley's Town Geology.
Tenney's Natural History (abridged).
Dorcas' Mineralogy and Geology.
Gray's Series of Botanies.
Half Hours with Modern Scientists.
Science Primers (Appleton's).
Physical Technics—by Dr. J. Frick.
Lessons in Elementary Botany—Professor D. Oliver.
Things not Generally Known—David A. Wells.
The Earth and Its Wonders—Hitchcock & Walden.

ABSTRACT OF STATISTICS

FROM STATE SUPERINTENDENT'S REPORT, FOR SCHOOL YEAR ENDING JUNE 30, 1872.

	1871.	1872.	Increase.
White boys between 5 and 15 years old.....	65,359	68,840	3,481
White girls between 5 and 15 years old.....	62,549	66,368	3,819
Total whites between 5 and 15 years old...	127,908	135,208	7,300
Negro boys between 5 and 15 years old	480	489	9
Negro girls between 5 and 15 years old	421	385	Decrease—36
Total negroes between 5 and 15 years old.	901	874	Dec.—27
Indian boys between 5 and 15 years old.....	765	708	Dec.—59
Indian girls between 5 and 15 years old.....	542	571	29
Total Indians between 5 and 15 years old, living under guardianship of whites.....	1,307	1,279	Dec.—28
Total census children between 5 and 15 years old.....	130,116	137,361	7,245
Total whites under 5 years of age.....	65,799	69,222	3,423
Total negroes under 5 years of age.....	249	254	5
Total Indians under 5 years of age.....	254	247	Dec.—7
Total children under 5 years of age.....	66,302	69,723	3,421
Total whites bet. 5 and 15 at public school..	83,039	92,265	9,226
Total negroes bet. 5 and 15 at public school..	449	385	Dec.—64
Total Indians bet. 5 and 15 at public school..	140	144	4

Total attended public schools between 5 and 15	83,628	92,794	9,166
Number whites attending private school, between 5 and 15	15,452	13,677	Dec.—1,775
Number negroes attending private school, between 5 and 15	58	90	32
Number Indians attending private school, between 5 and 15	14	20	6
Total number attending private school, between 5 and 15	15,524	13,787	Dec.—1,737
Number whites who attended no school, between 5 and 15	28,587	29,266	679
Number negroes who attended no school, between 5 and 15	270	399	129
Number Indians who attended no school, between 5 and 15	602	1,115	513
Total children between 5 and 15 who attended no school	29,459	30,780	1,312
Total number enrolled	91,332	94,720	3,388
Average number belonging	72,031	72,972	941
Average daily attendance	64,286	65,700	1,414
Percentage of attendance on average number belonging	89	90	1
Total number of schools	1,550	1,612	62
Total number of male teachers	820	881	61
Total number of female teachers	1,232	1,420	188
Total number of teachers	2,052	2,301	249
Number of new school houses erected	125	124	Dec.—1
Cash received from State apportionment	$423,550 89	$424,021 85	$470 96
Cash received from county taxes	889,622 86	988,636 21	99,013 35
Cash received from miscellaneous sources	571,413 09	719,125 52	147,712 43
Total cash receipts	$1,884,586 84	$2.131,783 58	$247,196 74
Amount paid for teachers' salaries	$1,103,125 14	$1,282,799 15	$179,674 01
Amount paid for sites, buildings, repairs and school furniture	390,158 40	290,119 01	D100,039 39
Amount paid for school libraries	26,766 30	25,793 54	D927 76
Amount paid for school apparatus	3,689 46	4,720 13	1,030 67
Amount paid for rent, fuel, and contingent expenses	204,094 19	277,900 99	73,806 80
Total expenditures	$1,727,833 49	$1,881,332 82	$153,499 33
Total valuation of school property	3,362.580 18	3,822,663 15	460,082 97

BOOK NOTICES.

A SMALLER SCHOOL HISTORY OF THE UNITED STATES. By DAVID B. SCOTT. With Maps and Engravings. New York: Harper & Bro. San Francisco: A. Roman & Co.

A small volume of 235 pages. Print and illustrations, excellent. This little work has been designed to meet the wants of such students who have no time to complete the study of "Harper's School History of the United States." The appendix is particularly interesting and useful. It comprises the following: States admitted and

Territories organized since 1787. Settlement and admission of the States. Presidents and Vice Presidents of the United States. Declaration of Independence. Constitution of the United States, with the fifteen amendments to the Constitution, and chronological table. We recommend it to teachers and the public generally.

OUTLINES OF HISTORY. By EDWARD A. FREEMAN, D. C. L., New York: Holt & Williams, 1872. San Francisco: A. S. Bancroft & Co., and Payot, Upham & Co.

A neat volume of 366 pages, fine print. It is the first book of a series on general history, on a plan entirely in harmony with the best improved methods of teaching history. We have always held the opinion that without clear notions of general history the history of particular countries can never be rightly understood. In conformity with this established principle, the author presents us an outline of general history in seventeen chapters, or, as it were, in seventeen tableaux. These will be followed by a series of special histories of particular countries. According to our views, this volume ought to be preceded by a series of biographical sketches of the most eminent men of each era; thus proceeding from particulars to the general.

A SCHOOL HISORY OF THE UNITED STATES. By W. H. VENABLE. Wilson, Hinkle, & Co., Cincinnati and New York, 1872.

A neat volume of 247 pages, besides an appendix, comprising the following: Declaration of Independence; Constitution of the United States, and amendments to the Constitution. The execution of the accompanying maps is simply beautiful, the best we have yet seen; and the cuts representing the leading men of the country are better, truer, and finer than we usually find them in school books. The print is clear and beautiful.

We like the style of the author, being flowing, simple, plain, and direct; and also his idea of referring constantly to the accompanying maps by simple questions, making instruction thereby more visual, and affording teachers an opportunity of showing the true relation of historical facts, and of pointing out their causes and effects.

We recommend it most heartily to all teachers and parents.

A TEST SPELLING BOOK FOR THE USE OF ADVANCED CLASSES. By W. D. HENKLE. Cincinnati: Wilson, Hinkle & Co. San Francisco: Payot, Upham & Co.

We do not agree with the author in the assumption that there is a need of a good spelling book for advaneed classes. We have already too many of such utterly useless books. They do more harm than good; for they violate every sound and philosophical principle of instruction. They are the bane of the school room; the creators of thoughtlessness. The study and committing to memory of mere empty signs is the most degrading, for it reduces God's noblest creature to a mere machine. We create words when we have created an idea; let our children do the same.

A compilation and proper arrangement of our homonyms would be very instructive and useful.

ALDEN'S CITIZEN'S MANUAL. A TEXT BOOK ON GOVERNMENT FOR COMMON SCHOOLS. By REV. JOS. ALDEN, D. D., LL. D. New York: Sheldon & Co.

Whenever we find the subject matter of a text book arranged in questions and answers, we feel as if no one had yet lived who had carefully investigated and properly set forth the true principles of teaching.

Perhaps the author has forgotten that teachers are now of age; that they need no more cud. They have ceased to be ruminating animals. They have relinquished three of their stomachs, finding it exceedingly difficult to feed four with their scanty salary.

THE YOUNG DECLAIMER. By CHARLES NORTHEND. New York: A. S. Barnes & Co.

A fine little volume of 205 pages. The very name of the author affords a guarantee that the material selected is of the very best.

MCGUFFEY'S NEW JUVENILE SPEAKER. Cincinnati: Wilson, Hinkle & Co.

A neat volume of 228 pages. The subject matter is very instructively arranged. A novel, interesting, and valuable feature is the introduction of choruses, to be spoken, read, or sung in concert.

OXFORD'S JUNIOR SPEAKER. By W. OXFORD. Philadelphia: E. H. Butler & Co.

The author most respectfully warns compilers not to appropriate his property. We sincerely hope compilers will comply with his request.

INDEPENDENT SIXTH READER. By J. MADISON WATSON. New York: Barnes & Co., 1872.

A large volume of 454 pages. Print, large and heavy faced; very agreeable to the eye. The pieces are selected from the very best authors of England and America. The book is well adapted for high schools.

FIRST LINES OF ENGLISH GRAMMAR. THE INSTITUTES OF ENGLISH GRAMMAR. Both works by GOOLD BROWN. New York: William Wood & Co., 1872.

Both books are so well known, and so much in use here, that further comment is needless.

1. STODDARD'S AMERICAN INTELLECTUAL ARITHMETIC. 2. STODDARD'S COMPLETE ARITHMETIC. 3. THE COMPLETE SCHOOL ALGEBRA. By JOHN F. STODDARD. New York: Sheldon & Co.

Three new text books which differ not, in a methodical point of view, from any of the rest on the same subject.

ECLECTIC PRIMARY COPY BOOK. Cincinnati: Wilson, Hinkle & Co.

A neat little copy book, which may serve teachers as a guide.

CLARK'S BEGINNER'S GRAMMAR. With illustrations and diagrams. By H. W. Clark, A. M. New York and Chicago: A. S. Barnes & Co.

In the hands of teachers we consider this grammar a good book, well calculated to show him the manner of effectual teaching, to force him gradually from text book slavery, and make him an independent agent in the school room. In the hands of pupils we fear its effect would be no better than that of any other text book on grammar. We must heartily recommend it to our teachers; for we sincerely believe that a close and careful study of it will convince many a one that grammar may be taught more effectually without than with a text book. Such lessons are profitable, both to pupils and teachers, and will produce happy results. Try it.

INDEPENDENT CHILD'S SPELLER. Printed in imitation of writing. By J. Madison Watson. New York and Chicago: A. S. Barnes & Co., 1873.

A small book of 80 pages. We are glad to see this little book; it indicates another step onward to a rational method of teaching how to read and write. The idea that there is something radically wrong in our manner of teaching seems to become daily more general. It is humiliating to us to confess that even our old experienced and professional teachers are still hesitating to admit that the reform must begin in the primary department. As long as we entrust beginners to the most inexperienced of our teachers, we shall see the same results. The superstructure will never stand the

test as long as the foundation is weak and insecure. Had we absolute control in school matters, and not sufficient means to maintain all an equal length of time, we should close the higher, at once, and begin by reorganizing first the primary department. We should offer a good premium for well instructed and thorough teachers, willing to devote themselves to primary teaching. *The first two years of a child's school years are the most important, the most influential, the most beneficial.* It is comparatively, an easy task to teach higher grades well when pupils come thoroughly prepared from the primary. We are well aware of the fact that many a so called educator sneers at the idea of beginning to reform primary instruction; but that must be granted: for every being was given some manner of expression.

THE PAYSON, DUNTON & SCRIBNER MANUAL OF PENMANSHIP. P. D. & S., authors. New York and Chicago: Woolworth, Ainsworth & Co.

Teachers desirous of possessing a manual on writing, containing all that is wanted to make writing lessons instructive, pleasant, and efficient, will find the above mentioned book second to none. Besides its usefulness, we consider this book a perfect piece of art, an object of beauty which ought to be in the hands of every teacher.

MONTEITH'S COMPREHENSIVE GEOGRAPHY. With map drawing and relief maps. By James Monteith. New York and Chicago: A. S. Barnes & Co. San Francisco: Libby & Swett.

This book is quite an improvement, in point of execution, on the geographical series of the author. The maps are better, and are much less incumbered with useless details. The map questions are reduced to a minimum, to the most important. Compared with others, it is certainly concise, simple, and diversified in regard to the matter presented. With a good preparatory course on local geography, it would answer all the wants of our schools.

DISTRICT CLERK'S RECORD BOOK. Third edition. San Francisco: Libby & Swett.

District Clerk's will find this book extremely useful. It will enable them to systematize and facilitate their work of keeping accounts and records.

THE NATION.

On the 2d of January, 1873, the *Nation* enters upon its sixteenth volume. If any of our readers wish to subscribe for a journal which stands at the head of American weeklies, let them send five dollars to the publisher of the *Nation*, New York. The first three pages of every number are filled with commentaries on the current news of the week, domestic and foreign, political or otherwise, written in a spirited style, and free from all narrow partisanship. Then follow short essays on political and social topics; correspondence describing the most important events of the political and solial life of Europe; "notes" announcing new works of literature and art, or criticising events, men and books; and last, though not least, reviews of books and art criticisms. The reviews of educational books alone are worth the price of yearly subscription to teachers who wish to keep themselves advised about text books.

THE OVERLAND FOR JANUARY.

With this number the *Overland* begins its tenth volume. The contents are unusually varied and interesting. The last installment of Joaquin Miller's *Isles of the Amazons* is very acceptable. Besides this, we have of poetry two short pieces, one of which, by Miss Coolbrith, deserves, from its tender simplicity, to be quoted in full:

CHRISTMAS EVE: 1872.

Peace in thy snowy breast,
O! cloud from storm at rest!
Peace in the winds that sleep
Upon the deep.

Peace in the starry height,
Peace infinite,
Through all the worlds that move
Within His love.

O! all sad hearts, that be
On land or on the sea,
God's peace with you rest light
This Christmas night!

And with the souls that stand
In that dear land
Where pain and all tears cease,
Most perfect peace!

The prose pieces are excellent, excepting *The Ghost of Rummelsburg*. which for us has lost its relish, though it vividly recalls the time when first we read it; when the probing of the mysteries of the *Hexensprung* of the *Bremer Wall* was the goal of our ambition. *Half and Half* owes its insertion, we trust, only to the fact that in complement to the season a "Christmas Chronicle" had to be given. In *The City of the Golden Gate* San Francisco receives some trenchant though deserved criticisms. *Brave Mrs. Lyle* recalls some of the horrors of the late civil war. *A Journey in a Junk* describes a very adventurous and unusual trip to a remarkable Buddhist temple in Cochin China. The "Etc." and book notices are very full and readable.

TO SCHOOL OFFICERS:

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☞ *Send for a List of the Contents.*

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THE

CALIFORNIA TEACHER.

MARCH, 1873.

VOL. X. SACRAMENTO. No. 9.

[*For the California Teacher.*]

GUIDES FOR INSTRUCTION IN LOCAL GEOGRAPHY.

[FROM THE GERMAN OF C. DIEFENBACH, BY MRS. LANE.]

II. HIGHER LOCAL GEOGRAPHY.

By means of the preceding instruction in local geography the children have not only cultivated their faculty of sense-perception, but have also acquired a knowledge of many local facts and various phenomena. In accomplishing this no systematic method has been followed, but the most favorable opportunities for observing separate phenomena, particularly such as are transitory and fleeting, have been improved. The seasons of the year have here greatly served as guides. Also, in groups of similar objects, one has been selected as a representative of all for observation and study; for example, one street, one public square, one church, one body of water, etc. In this way the child has been led to perceive and take cognizance of the essential characteristics of all such objects.

But, in its higher steps, local geography can no longer occupy *itself* with the consideration and description of single objects; it has rather to endeavor to bring to view order in the manifold and varied forms and phenomena in the world of home, by associating and grouping together things similar in nature. In

no other way would it be possible to accomplish the final task of local geograghy, viz., to create a complete mental picture of the locality studied, and its various features and phenomena.

Hence it now follows that instruction in local geography, in its advanced steps, must follow a fixed system, which is quite foreign to the nature of sense-perception instruction. The reviewing in the third year of much which has come under notice in the primary steps of the study, will be but more conducive to the accomplishment of this purpose.

As an object of instruction, I should divide the subject into two parts :

1. Its changing and changeable phenomena, or the department of observation.

2. The fixed and unchangeable features, the department of consideration and reflection.

The two parts of the course of instruction do not succeed one another, but rather the first mingles itself incessantly with the second, in every season of the year. It comprises, chiefly, phenomena of the sun, moon, stars and atmosphere. Let us draw nearer to this matter.

1. THE LOCALITY OF HOME IN ITS CHANGING PHENOMENA—DEPARTMENT OF OBSERVATION. a. *The Sun.*—In the heavens we see the sun by day, the moon and stars by night. Always? Do we not often see the moon by day also ? These, together, are called the heavenly bodies. The sun appears to be the largest among them ; it moves from east to west, in a curved line, bending towards the south. From morning to noon-day it ascends ; from noon to evening it descends. The highest point reached is at noon. In the sunshine all non-transparent bodies throw a shadow. Observe the shadow of such a body—your arm, for instance—at morning, noon, and evening, taking notice of its direction and length. Result : the shadow always lies in the direction opposite to the sun—in the morning toward the west, at noon toward the north, at evening toward the east. It is smallest at mid-day, largest morning and evening. From morning to noon it decreases gradually in size—from noon to evening it increases. It describes a curved line from west to east, bending toward the north, in a manner directly opposit to that of the sun. Repeat these observations and descri

tions frequently in the course of the year. At different times mark points of rising and setting of the sun; also, its height at mid-day. The days of Spring and Autumn, as well as of Summer and Winter, are not to be allowed to pass unnoticed. At last we shall reach this result: The sun does not always rise and set at the same points in the horizon. At the beginning of Spring and Autumn it may be said the sun rises exactly in the east, and sets exactly in the west; these points are to be marked—also the time of rising and setting. Till the beginning of Summer it rises and sets continually farther and farther toward the north. It also rises continually earlier and earlier, and sets later and later. At mid-day it ascends continually higher and higher—the shadow becomes shorter and shorter. The line it describes is always an increasing curve. From the twenty-first of June all this is reversed. On that day the sun rises furthest at the northeast, and sets furthest at the northwest. That is the day of its earliest rising and latest setting; at noon of that day it reaches its highest point in the heavens; the shadow of the body is then smallest; the curve the sun describes in the heavens, the largest. Continuing observations of this nature, during the remaining part of the year, and especially at the beginning of Winter, similar facts will be developed in regard to the sun's rising and setting, the height and length of the curve it describes, length of shadow at noonday, etc. The tropics can here be well explained. Difference of temperature at different parts of the day, and at different seasons of the year.

b. *The Moon.*—Observations of the moon are best commenced in some month of Autumn and Winter; they should be continued through the whole month, from one full moon to the next. Result: The moon also rises in the east and sets in the west, but not always in the same place. Neither does it rise every day at the same hour, but each day later. Its form is ot always the same, but changes every day, sometimes growıg larger, sometimes smaller; when the whole disk is lighted e say it is *full moon*; when it has decreased to one-half we call the *last quarter*; when we cannot see it at all because it rises ıd sets with the sun we say it is *new moon*; when it has again creased to one-half we say it is the *first quarter*. In the last

quarter we see the *left* half lighted, in the first quarter the *right* half. How does the crescent form appear by the increasing light, how by the decreasing light? (Drawings.) When the moon is on the increase we see it evenings; on the decrease, mornings. The full moon shines the whole night. The new moon is in the heavens the whole day, but invisible. How many days from the full moon to the last quarter? From the last quarter to new moon? From the new moon to the first quarter? From the first quarter to full moon? How many, therefore, from full moon to another? (Should an eclipse of the sun or moon occur, observe and remark upon it).

c. *Observations of the Stars.*—Here we have not to go beyond a few constellations and the position of one or another planet. In the constellations no change in the position of the stars to each other, is perceptible: they remain throughout the year in the same relative position to each other. Not so with the evening-star or morning-star, which is sometimes near one constellation, sometimes near another. The morning-star or evening-star is a planet, a wandering star. The constellations best adapted to observation during the whole year are the Greater Bear and the Lesser Bear; in Winter, Orion. (Drawings.) At different times of the year both constellations to be observed. Final result: The terminal star of the straight shaft of the Lesser Bear (Urso Minor), is always in the sky, and always at the same point in the sky. It is called the Polar Star. The Greater Bear is always in the sky, but not always in the same place; it revolves around the polar star. In Winter attention to be directed to Orion. (Drawing.) After observing Orion at 7 o'clock and again at 9 o'clock—was it still in the same place at 9 o'clock? It was further to the right and the west. Had we looked again still later we should have seen it set in the west. Stars that set also rise again. Orion, like the sun and the moon, rises in the east and sets in the west. It describes an arc in the heavens, as do also many other stars. The Greater Bear and the Lesser Bear, on the contrary, as also the other stars near them, do not rise and set. They describe no arc in the heavens but a complete circle. Observe again this evening at 7 o'clock the point where Orion stands; we will look at it again in three or four weeks from now, and see if it still stands in the

same place at the same hour. It will be seen that it has gone farther towards the west. At last it will be seen to set at 7 o'clock in the evening, and still later will no more be seen at that hour. The constellation of Orion is not always in the sky at night; in Winter we see it, in Summer we do not see it. The same with many other stars. The sky of night does not display in Winter all the stars of Summer, nor in Autumn all those of Spring. Observations of Sirius and of the Pleiades, may be made together with those of Orion. If we draw a straight line through the belt of Orion, continuing it in a south-easterly direction, it will reach a large, brilliant star named Sirius; it and the stars near it, compose the constellation Canis Major. Large bright stars like Sirius are called stars of the first magnitude. The stars of the Ursa Major are less bright and hence are called stars of the second magnitude. What do you think of the stars of Orion in regard to their brightness? Westward from Orion is seen a thick cluster of stars; these are named Pleiades. We sometimes call them a flock of wild pigeons flying from the huntsman Orion; every night one of them is killed but in the evening we see another in its place. There are many other constellations in the heavens, besides those already mentioned; you will learn them hereafter.

d. *Observations of Weather.*—A weather-vane in the vicinity of the school-house, is to be used as an aid. A manuscript book is to be prepared, and for eight or ten days to be used in turn by the best scholars as a note-book. Herein is to be written each day besides the direction of the wind other phenomena also, for example, that it has rained, snowed, hailed; that the sky has been clear or cloudy; that it was warm or cold, etc. At the end of a certain time, perhaps a month, a summary is to be made; so many clear days, so many cloudy days, so many rainy days, etc; a certain wind prevailed. Result: The weather is not the same every day of the year; it changes continually; he sky is sometimes bright, sometimes cloudy; the wind has ot always the same direction and force; when it comes from owards the north the weather is clear, when it veers toward he south we may expect rain. Here is opportunity for expla- ion of the word climate, of the phrases temperate climate, ealthy climate, etc. Observations of snow on mountains in

sight while there is none in the vicinity, may be made to illustrate the greater cold on highland than on lowland; also observation of smoke ascending from chimneys to be made in determining direction of the wind.

2. THE LOCALITY OF HOME IN ITS UNCHANGEABLE FEATURES.—*Department of Consideration and Reflection.*—It is impossible to make the division of the phenomena to be observed entirely distinct; the department of reflection and consideration must comprise much that is not fixed and unchangeable, for instance, animated nature as represented in the animal kingdom. Life is motion, and all motion to be learned must be observed. Since, however, the animal kingdom in its motion and activity, and the vegetable kingdom in its development, belong to a fixed locality, we therefore, in this case, combine observation with consideration and reflection. For convenience we shall select San Francisco for illustration of this department.

a. *General View of San Francisco.*—The place where we reside, where our school-house stands, is named San Francisco. San Francisco is called a city. A city is an incorporated town governed by a Mayor and a Board of Supervisors or City Council. San Francisco is situated on the west side of San Francisco Bay, directly opposite on the eastern shore is Oakland; San Francisco also lies on the southern shore of the Golden Gate; Saucelito is situated on an inlet of the opposite northern shore, and lies a little west of north from San Francisco.

b. *Streets.*—The city contains many streets. Each of you may tell me the name of some street. Market street is one of the longest and widest; its commencement is at the water's edge, about two-thirds of the distance from Meiggs' Wharf to Rincon Point, from there it extends in a straight line, its direction being northeast and southwest. Most of the streets lying north of Market street run at right angles to each other, their direction being nearly north and south, east and west; south of the line of Market street, the streets run in various directions and at various angles. Market street is one of the business streets of the city. Let us see how may different kinds of business located on Market street you can mention to me. What public building? What other large buildings? Van Ness Avenue is also a very wide street. It commences at Market street and extends to the

water's edge, which it reaches in the vicinity of Black Point. Van Ness Avenue runs north and south, and Market street northeast and southeast, it therefore lies in a diagonal line to Market street. Does it then form a right angle with Market street? Does it run parallel to Market street? Can you tell me what kind of buildings we find on Van Ness Avenue? Is it a business street? Point Lobos Avenue is another very wide street; it commences at Laurel Hill Cemetery, or Lone Mountain, and extends in a westward direction to the Pacific Ocean, which it reaches just south of Point Lobos; Point Lobos forms the southwestern boundary of the Golden Gate. Point Lobos Avenue runs in an easterly and westerly direction; is it then parallel to Van Ness Avenue? To Market street? How many of you have been on Point Lobos Avenue? Did you see as many business places as on Market street? As many private residences as on Van Ness Avenue? Did you meet any heavily loaded business teams? What rocks are in the Pacific Ocean opposite the end of this road? What animals live on these rocks? Front street, Battery street, Sansome street, Montgomery street and Kearney street, all run from Market street north towards the water, in the direction of North Point near Meiggs' Wharf; they all run in a northerly and southerly direction; (drawing) the lines which separate them are parallel lines, and hence we say these streets are parallel to each other. Each of you may tell me of some place of business on either of these streets. Are these business streets? Each scholar should give the name of the street on which he lives, and the directions in which it extends. Also, the direction at 12 o'clock M. of the shadows in any given street; if they fall in the same direction as the street, then the latter must extend north and south; if, on the contrary, they fall upon one side, then the street extends rather in an easterly and westerly direction; very narrow streets extending in the latter direction will lie wholly in shadow at noonday. The chief aim of this exercise is to enable the learners, wherever they may be, to recognize the cardinal points. There are so many streets in the city that we cannot name them all; some are long, some short; some wide, some narrow; some straight, some crooked; some are called places, courts, or alleys; these are generally shorter and narrower than most of

the streets, and some are closed at one end. What can you tell of the different kinds of paving with which the streets are covered? Of what use is it to pave the streets? At night the streets are ligted with gas; where does the gas come from? In Summer some of the streets are watered; why?

c. *Public Squares.*—There are several of these in the city. Who can mention one? another? Many of you have seen Portsmouth Square. It is surrounded, or bounded, by Brenham Place, Washington street, Kearney street, and Clay street. As many of you as can do so, I wish to visit this square, and tell me on which side (north, south, etc.) each of these streets lies, and, also, how many steps the square measures. (It is better, instead of Portsmouth Square, to select the square nearest the school-house for the first lesson; for the second, for each child the square nearest his own home, or one which he must pass on his way to school, and others afterwards. Let the pupils bring in drawings of these squares, representing the measurements they have made, accompanied by written descriptions, always insisting upon the cardinal points being indicated, and this from their own observation.) Among others you have mentioned the Golden Gate Park. This is in the shape of a parallelogram, half a mile in width, and over three miles in length; it contains about one thousand acres; its longest extent is from east to west, while its width of one half a mile extends from north to south. It lies in a westerly direction from the new City Hall—its eastern border is a little less than two miles distant from the City Hall. The Golden Gate Park is bounded on the north by D street, on the east by Stanyan street, on the south by H street, on the west by the Pacific Ocean. It is to be entered through an avenue two hundred and seventy-five feet in width, and four fifths of a mile in length; the eastern extremity of this avenue is less than one mile west of the new City Hall. The western three fourths of the Park is, at present, drifting sand; the eastern one fourth is arable land. It is divided by several ridges of hills, some of which rise about two hundred feet above the average level of the Park, and four hundred feet above the level of the ocean.

d. *Sketching of a Map of San Francisco.*—The pupils have already been required to draw simple maps, representing the

location of the school-house, of their own homes, and of public squares, and other places in the city. They have observed that in every drawing of a map, south has always been opposite to north, east to west. Their maps should always be made with a cross indicating the four points of the compass; when drawing upon the blackboard, however, it is well to exercise them in varying the direction of the cardinal points; for example, while one has north indicated by the top of the blackboard, the next one may have it represented at the right, the next one at lower part of the blackboard, the next one at the left, and others may represent it at points diagonal to these; this, however, must not be done till after they have had sufficient practice not to become confused in the general rule that, on maps, north is represented by the upper part, south by the lower part, east by the right, and west by the left. The following method of sketching a map of San Francisco is given to illustrate the general plan, and is by no means offered as the best plan of arrangement. First, draw a cross representing the four cardinal points. In the middle of the quarter which represents the northeastern part of the space allotted to the whole map, draw a dotted line from northeast to southwest; as Market street runs a little east of northeast, and a little west of southwest, draw another line intersecting these at very acute angles; now erase the first line and leave the second line to represent Market street. In the middle of this line make a large dot to represent the new City Hall; now draw a small right-angled triangle at the north of Market street, making the dot the centre of the hypothenuse; the streets drawn may now be named, and the City Hall Park thus bounded: on the north by McAllister street, on the northeast by Jones street, southeast by Market street, west by Larkin street. Larkin street may now be extended northwards, its northern end indicating the vicinity of Black Point. Continue Jones street in a line parallel to Larkin street, the two intermediate parallel streets being indicated by lines, and their names learned. Now, extend Hayes street in a westward direction from the southwestern angle of City Hall Park. Next, draw Van Ness Avenue a little to the west of Larkin street, and parallel with it, beginning at Market street, crossing Hayes street at right angles, and terminating it

also in the vicinity of Black Point. Passing westward at a right angle from Van Ness Avenue, we come to Park Avenue, which leads to the parallelogram representing Golden Gate Park. A little north of the western end of the Park we find the Cliff House and Seal Rock; a little further north, Point Lobos. North of Park Avenue we will locate the Masonic, Odd Fellows', Calvary, and Laurel Hill Cemeteries. Fort Point a little further north than Black Point, northwest from Laurel Hill Cemetery, and northeast from Point Lobos; directly south of Fort Point is the Presidio. Let us now return to the Cliff House, and ride along the beach till we come to the Ocean House road; this road runs nearly east from the beach until we have gone some ways beyond the Ocean House, it then turns to the southeast till it brings us to the Industrial School; here the San Jose Railroad coming from the south, crosses this road opposite the Industrial School, and here we will take the cars, and wind along in a northeasterly direction, till we reach the San Jose depot on Market street; this depot is but a little distance southwest of the junction of Van Ness Avenue and Market street. On our way in the cars, when we had rode about one third of the distance, we passed St. Mary's College at the right and east of the road; at about three fourths of the distance rode in the cars, we passed the Jewish Cemetery at the left and east of the road; and half way between the Jewish Cemetery and the Market street depot was the old Mission Church—this church is also half way between the railroad on the east and Market street on the west. We will now locate the Alms-House by drawing a straight line northwards from the industrial School to the eastern end of the Golden Gate Park, and on this line, half way between the Industrial School and the Golden Gate Park, we will make the site of the Alms-House. We will next locate the County Hospital, which lies in a nearly easterly line from the Alms-House, east, also, of the San Jose Railroad. Let us now return to the junction of Jones and Market streets, the northeast boundary of City Hall Park. Continuing our way through Market street in a northeasterly direction, after passing six blocks, we come to the first large business street that runs north and south; this is Kearny street, and we will represent it by a line running parallel to Van Ness Avenue,

Jones and Larkin streets. Kearny street is a long thoroughfare, and we will walk along it the distance of eleven blocks, when we find the street crossed at right angles by Broadway, which runs east and west; turning to our left we see the City and County Jail, on the north side of Broadway, a little distance from Kearny. Now, locate and name streets east of Kearny, and parallel to it. Locate and bound principal public squares. Names, in their order, of the streets between Kearny and Van Ness Avenue, etc. The location of school-house should have been noted as soon as it could be indicated by the outlines drawn; each child should also be required to locate his own residence on the map drawn by him. Of course each teacher will select additional points of importance, guided, somewhat, by the degree of interest this or that place may have for this or that class. Any map of San Francisco may be used as a first guide and aid in these lessons.

e. *Water Used in our Houses and in the City.*—We obtain the water which we use in our houses in two ways: first, from wells and springs out of which we usually pump the water; second, from pipes which carry the water into or through our houses. By the latter method there are always several large reservoirs, into which large quantities of water are conducted by pipes or flumes, and from them are subterranean pipes leading to various parts of the city. In some houses the water flows freely through pipes to the upper story; in other houses it does not flow freely to the upper stories without the aid of a force-pump. Can you tell why? The water which flows in subterranean pipes is also used in extinguishing fires. There are certain places to which the hose of the fire engine can be attached, and the water then flows through the hose and is thus thrown upon the burning building. Who has ever seen the hose thus attached? How can these hydrants be distinguished? Water which has been used and also rain water is conducted away in the same manner as pure water is brought into and through the city; the subterranean passages through which the waste-water flows are called sewers. The springs from which we obtain water for domestic purposes are springs of pure water; there are also other springs the water of which is impregnated with certain minerals, as sulphur, etc. These springs are called min-

eral springs and the water is considered beneficial in the cure of various diseases. Besides the mineral waters from natural springs, we have also manufactured mineral waters. Can you mention any mineral springs in this State? Where situated?

f. *Buildings in the City.*—(San Francisco taken for illustration.) The houses in which people reside are called *dwelling houses.* Are there any houses in which people do not reside? Name such. Houses belonging to individuals and adapted to the residence of but a few persons and not occupied for business or trade, are called private houses; houses belonging to the city or to a society of individuals are called public buildings; such are the city hall, county jail, theatres, churches, school-houses. Dwelling houses may differ from each other in height and in size; they vary in height from one to several stories; how many stories high is the house in which you dwell? Our school-house? Some houses that we can see from the window of the school-room? Some houses have neighboring buildings belonging to them, that are used for cattle, carriages, etc. Name some such house. In the city most of the houses are numbered. In San Francisco the City Ordinance makes Market street the starting point for the numbering of all streets leading from Market street, in either a northerly, a south easterly or a westerly direction; the streets laid down on the official map of the city as forming the water-front thereof, are made the starting point for numbers on all streets running westerly and south westerly therefrom; on all streets the numbers on the right hand side, starting from the point of beginning, are even numbers, on the left hand side, odd numbers. One hundred numbers are alloted to each block, fifty on a side; thus the numbers between one hundred and two hundred would be found in the second block bounded by principal streets; every number between two hundred and three hundred would be found in the third block bounded by principal streets, and so on. For each number there must be at least twenty feet frontage allowed. Can you tell me when we find two main entrances within twenty feet, how the houses are then numbered? In some streets from their being partially opened or cut through or from some other irregularity the numbers do not conform to the arrangement established by law. What is the number of the house where you

live? Is that an odd or even number? Is your house then on the right or left side of the street starting from the beginning of the numbers? Here a useful exercise may be made by selecting streets the numbering of the houses in which corresponds to the requirements of the City Ordinance, and requiring the pupils to tell in which *block* of said street a certain number will be found, on which *side*, where the street begins, what street, in their order, divide the block, and hence in what street said number will be found. In some cities, are houses that have been built a hundred or hundreds of years; these appear quite different to the eye from modern houses; in San Francisco, however, we have but few old houses, and none so old as many eastern and European cities have. Why? Of what are the very oldest houses in this city built? With what are the roofs covered? How many of you have ever seen such a house?

g. *Manufactories.*—Who of you has ever seen a manufactory or a factory? Where? What was made there? Let us see how many others we can name, telling where situated and special manufactures. In a factory there are a large number of workmen employed. They are usually aided by machinery. Some of these buildings are very large and have high chimneys; can you name any such?

h. *Churches.* What church is nearest to our school-house? In what direction from it? Do all the people in this city go to this church? *Different Churches.*—Protestant, Catholic, Hebrew or Jewish. The Hebrew or Jewish church is called the Synagogue. The word *church* means *the Lord's house;* the word *synagogue, a collection of people*, or a *place where people collect.* Mention as many churches and synagogues as you can, and tell where they are situated. Mention different parts of the church building; for example, vestibule, nave or body of church, aisles, choir, chancel, gallery, vestry, tower, steeple, etc.

i. *School-houses.*—Name and location. Grammar schools; high schools; primary schools; public and private schools; institutions for the deaf, dumb, and blind. Besides the above named buildings notice hospitals, theatres, libraries, Post-office, Custom house, and others, giving location, and purposes for which they are used. We sometimes see the American flag raised on public and private houses; on some private houses

there is often some foreign flag raised, and on the front of the house the national coat-of-arms of the same country; whom would we expect to find dwelling in such a house? Can you tell me any of the duties of a consul?

j. *The Fire Department.*—However securely a city may be built, it is always subject to one great danger—conflagration. In order to extinguish such fires as soon as possible, and wherever they may break out, the people of cities unite in means of protection. In different parts of the city we have engine-houses; in these, fire engines and other implements for extinguishing fires are kept. Can you tell me where there is one such house? Besides these engine-houses there is one central office where watch is continually kept, day and night. From this central office a telegraphic apparatus connects with signal-boxes in various parts of the city, and also with the different engine-houses. The signal-boxes are always kept locked, but, on the discovery of a fire, the box nearest the fire is opened and the signal communicated to the central station; from here the watchman immediately strikes on the alarm bells the number of the district where the fire is; the same apparatus which strikes the the alarm at the same time strikes also the alarm gongs which are to be found in every engine-house. In looking over the numbers of the signal stations we find certain numbers omitted; for instance, 20–30–40, and so on; also, 11–22–33, etc.; why are these numbers omitted? In which fire district is our school-house? the house where you live? From 1849 to 1851, San Francisco was devastated by six great fires, in which property valued at many millions was destroyed. These frequent and destructive conflagrations were due in a great measure to the materials used in buildings at that early day of the city's existence, they being, in great part, composed of thin lumber, canvass, paper, and cloth; also, to an insufficient supply of water, and a less efficient and well organized fire department than is now established. That people may not suffer loss by fire, Insurance Companies are established; these, on payment of a certain sum of money, agree to pay to the loser the value of the property destroyed. Houses, furniture, and merchandise are thus insured. We often see on a house a small plate or sign, bearing the name of some insurance com-

pany ; why is it put on the house ? Who of you have ever seen such a plate ?

k. *Inhabitants of a City.*—1. Animals. — There are many people dwelling in a city, but, besides these are also many animals. Let us first speak of the latter. Many of these are of use to man ; they are sheltered, fed and cared for by man ; such are called domestic animals. Here mention of some to be made and some questions in regard to their form and appearances ; then questions like the following : What people use horses ? For what do they use them ? In the city we see many horses but few oxen, cows, calves, swine or poultry ; all the latter we usually find in greater numbers outside of the city. There may be many oxen, calves and swine and much poultry brought into the city but only to be slaughtered. Name different domestic animals and the special use to which each is put. Some animals are also merely for our amusement ; for example, some kinds of dogs, birds, as canaries, parrots, mocking-birds, etc.; also goldfishes. There are places of amusement for the public, called zoölogical gardens ; these contain a collection of a great variety of animals. Who of you have ever been in such a garden ?. Name some of the animals you saw. Many of these are brought from foreign lands ; the men who take care of them are called their *keepers*, and they feed the animals and take care of them. These animals are kept not for mere pleasure, but also that we may see and learn about the animals of foreign lands. There also many animals at large in the city who find food and shelter for themselves ; for instance, birds, rats, mice, flies, etc. 2. *People Dwelling in the City.*—The most important inhabitants of a city, however, are the *people* who dwell in it. In San Francisco, in 1872, there were 178,276 inhabitants ; of these 5,000 were what is called a floating population, that is, they have no permanent homes in the city, but live in hotels, hospitals, alms-houses, etc.—or they call San Francisco their home, but spend most of their time making short voyages along the coast, bay or rivers. Counting the number of people in the city, county, country, etc., is called "taking the census. This is a very old custom among nations, for we read in the Bible that the ancient Hebrews and their families were numbered by sex and age ; and the most ancient record of a census

that we possess is the enumeration, by Moses, of the people in the wilderness. The inhabitants of a place differ in age, wealth, religion, etc. According to age, they are divided into adults, and those who have not yet reached the age of eighteen or twenty-one years. Are you an adult? In regard to wealth, we find people of every degree, from extreme and helpless poverty to immense wealth. The rich have to help provide for the poor; this they do partly by the taxes which they pay to the Government, partly by establishing charitable and other societies, and also in more direct ways. When you no longer go to school, each of you will find something to do among your fellow men; for instance, what will *you* do? and you? etc. Thus each of you will follow some calling, that is, some pursuit, business or profession—a certain department of labor by which you will support yourselves and acquire property. The wealth which one possesses is called his property. Some of you will become farmers; where will those live and what will they do? Some will become mechanics; tell me some things which a mechanic makes. Some will be manufacturers; how many kinds of maufactories can you name? There are also many tradesmen or merchants, who buy and sell various kinds of wares and goods. A trader or merchant usually has on the outer wall of his store a sign, on which is his name and the kind of goods he buys and sells; often two or more persons unite in some business; this is called a partnership, and their names together is called the name of the firm or house. Merchants have others to assist them, and these are called clerks, book-keepers, cashiers, etc. A city where there are many merchants is called a commercial city; where there are many manufactories, a manufacturing city. Besides mechanics and merchants, there are also many other people—painters, musicians, singers, physicians, municipal officers, clergymen, lawyers, teachers, etc. Many people work the whole year in the streets; these are coachmen, teamsters, and other drivers, etc; others work in gardens and are called gardeners; and still others work on the water as fishermen, boatmen, etc. All the kinds of business we have mentioned are usually followed only by men. Women also have to work to support themselves and to acquire property; let us see how many kinds of business are

usually followed by women. The inhabitants of a city also differ in religion; there are Protestants, Catholics, and Hebrews or Jews. These different churches have schools to which children go once a week; what are such schools called? Are the pupils taught the same things that they learn in their day-schools? Some of these churches have day-schools also for children; can you tell me where there is one such school? Besides the inhabitants who have their home in any certain place, there are also people who come to that place to remain for a short time, sometimes for business and sometimes for pleasure; what accommodations are provided for these people whom we call travelers? Let us name several hotels and tell on what streets they are situated.

1. *Relation of Individual Municipalities to the Whole Country.*—As the different classes in a building constitute together one school, so a city and the surrounding towns and country constitutes a county; many counties are united in one State; many states united form our country. For the government of every *City* there is a Mayor and common council, board of aldermen or supervisors; of every *State* there is a Governor and legislature; of the *Country* the President and congress. These officers are chosen from among the people once in a certain number of years. The Mayor of a city dwells in the city; the Governor of a State in the capital city of that State; the President of the country at the National Capital. Who is the Mayor of our city? For how long is the Mayor elected? When was the present Mayor elected? When will his term of office expire? What city is the capital of the State in which we live? Who is President of our Country? For how many years is the President elected? When was our present President elected? When does his term of office expire? What city is the National Capital? Where is it situated? How far and in what direction from us? For the government and good order of cities, counties, states and country, much money is needed; this money is furnished by *taxes* which are paid to the government by the people; the rich have to pay large taxes, while the poor have but small taxes to pay.

[*For the California Teacher.*]

A SUGGESTION OR TWO.

A brief experience as a County Superintendent of Schools, has revealed to me what seem to be great defects in our common school system. No one will maintain that the system is perfect; nor is any one prepared to say that every change that could be suggested would be an improvement. That which appears to one to be a defect, to another is a commendable feature. But it is only by careful study of the system; just criticisms of its workings; and honest expression of opinion concerning the best plans for its advancement, that we can hope to bring it, if at all, to a perfect state.

Let me say at the outset, lest I be misunderstood, that I suggest the ideas embodied in this article, more for the purpose of calling forth a discussion as to the best method of school government, than for the purpose of stating my own opinions. I do not know that the plan I suggest is the best one; but I submit to those connected with our district schools all over the State, whether it is not a better one than that now in use.

Our method of local school government is a good one, but attended with many difficulties and annoyances. It is right that the people of every locality should exercise control over their district school. But accompanying the exercise of the right, are results far from satisfactory. There are sometimes dissensions and disturbances; sometimes neglect of the schools' interests or indifference to its success; and there is sometimes an ignorance of the best measures to be adopted to further the progress of the schools.

It may not be out of place to call attention to some of these defects.

To begin with, school elections are frequently allowed to go by default. There is in many instances an almost entire apathy, and when men accept the position of school trustee, they do under protest, and only because they feel that they owe a du to the neighborhood and themselves. In nine cases out of te the position is accepted through pure goodness of heart and *bono publico*. It is fortunate for the schools that heretofore th have had such excellent governors. Nearly always when t

office seeks the man, it fixes upon the best one. Our trustees are representative men—men who, were they to devote their energies to the schools, would do much to improve them.

But men elected to public positions against their wish, however capable they may be, are not so apt to bring to it the same degree of interest and attention that they would, did an honorable ambition lead them to aspire to it. They cannot help feeling that the services rendered are comparatively valueless, that they are doing for the public school what no one else wants to do. Especially is this the case of school trustees. Their position is a thankless one. Every body blames them and criticises them. They are a mark for every shaft. Many a man has made all the enemies he ever had, while conscientiously discharging his duties as a school trustee. After ex-President Buchanan had retired to private life, he was several times elected constable of the town where he resided. He was compelled, each time, to decline the proffered honor. No doubt he would have made a very indifferent officer, as do all who give grudgingly and hesitatingly, that which they feel the public has no right to exact, and which, when given, is oftentimes not appreciated.

But there is another view of the matter. School trustees receive no compensation, and yet are expected to neglect their own business and attend strictly to that of the school. To perform faithfully the duties of district clerk, requires no small amount of time and labor. There are a hundred details that must be attended to if the school is to go on properly, and attention to those may take a man from the plow or the shop, at a time when he can not well afford to go. If he go, he loses his time and destroys his business, thereby perhaps, robbing his family of needful income. If he do not go, his neighbors denounce him because he accepts a position and does not attend to his duties. Such is human nature and such the trials of a school trustee. Or, they may employ a teacher to whom some patron of the school may have conceived a dislike. The inevitble result is a harsh criticism and an unpleasant coolness. I ave known districts so embittered with petty feuds arising om differences of opinion in regard to the conduct of school atters, that sociability and good feeling were almost entirely stroyed.

Now, in place of the present plan of electing district trustees, the following outline of another plan is presented as a substitute: Let a Board of School Supervisors or Trustees for the county be elected by the people, to take charge of the schools of the entire county. Let this Board consist of five to ten of the citizens of the county, who, like the present County Supervisors, have the leisure, the means and the inclination to serve the people for almost nothing. A small salary should be paid, enough to cover the actual expense incurred in the duties of the office. Give to this Board of School Supervisors the general powers and duties for the county, that are now given to trustees by section 1617 of the Political Code. Make the School Superintendent of the county, the presiding officer and executive agent of the Board. Let the Board meet monthly, and have power to appoint two or three Deputy Superintendents, who, in connection with the School Superintendent, shall constantly visit and examine the schools, reporting at each meeting of the Board. Let the districts remain as at present, and each one draw, as now, the amount of school money to which it may be entitled, according to the number of school children it may contain, and let the law be so framed as to require the School Supervisors to expend for each district, the amount of money to which it may be entitled, without the powor to transfer from one to another.

Such, without going into further detail, is the outline of the plan I would suggest to take the place of the one now pursued. That there are objections to it, I am well aware. There are objections to every plan. But there are strong reasons in favor of this method—reasons so strong that I think it at least worthy of trial. Among others that could be named, are the following:

It would inspire a more general interest. There will not be so many petty strifes, and so much jealous animosity. There will be a larger interest in the affairs of the whole county, instead of being circumscribed as at present by the boundary of a single district.

Men will seek the position of School Supervisor, because the place will bring with it considerable power and influence. The employment of the teachers for an entire county, and the control of a large amount of business, would make the place a desirable one.

While the duties of the position would be more onerous than those of a Trustee, they would bring a man into a wider sphere of action, and greatly multiply his influence.

The schools would be furnished with more suitable teachers. By this I mean that the board, having before them the condition and wants of the schools of the whole county, and knowing the capacity and efficiency of the various teachers who might desire employment, could select for any given school from the applicants the one most fitted to teach that particular school. As it is, trustees many times have no means of knowing the capacity or suitability of a teacher except from the certificate presented. This is by no means an infallible test; and very often two teachers will secure two schools and succeed poorly if at all, when if they had interchanged places they would have done admirably. I have known many instances where teachers have failed miserably in one school and succeeded in another. Because, therefore, of this peculiar adaption of a particular person to a particular locality, and of the superior facilities of the board for knowing this, more suitable teachers would be secured.

It would prevent obviously the frequent change of teachers so common in the district schools of the country. I know of nothing that has prevented so much the success of our schools as the frequent change of teachers. But few remain more than a term, or at most two, in a school. For some reason they change and go to another locality. In general, there can be no success without the guidance of the same master.

It would economize the public funds by enabling the board to purchase supplies in bulk, and to distribute them as needed in the different localities.

It will do for the counties what a board of education does for a city. There is as much necessity and reason for dividing a city into fifty or a hundred districts, each with its own board of g vernors, and its independent schools, as to divide the county. I mean so far as the government and control of the schools are c ncerned. Or there would be as much reason in dividing a c unty into a large number of districts, each with its own offi- c rs for the purpose of controling and transacting the business r lating to its roads or hospital, or elections. There must be

general oversight in all of these things, and there ought to be in regard to the schools.

It will secure a more thorough supervision of the schools; more uniformity of classification of the pupils of country schools; a more regular and systematic adhesion to the course of study prescribed by the State Board of Education, and more equality in regard to teachers' salaries.

Such are some of the advantages which this plan seems to posses over the one in use. It may not seem at first to be at all superior, and the difficulties attending its introduction seem insurmountable. But I think that all of these can be overcome. I have mentioned the ideas attempted to be embodied in this article to several trustees of this (Santa Clara) county, who in each instance have thought the plan impracticable; but who, upon its being unfolded, have candidly expressed the opinion that it would be an improvement.

There is an objection that its tendency is to centralization of power, and as many condemn this in the general government so they do in all local government. While this is in a measure true, it is equally true that there must be some centralization of power. Authority must be concentrated somewhere. We should not contend for a theory if its practical application is unsatisfactory. We want results and not an applied theory. But this is not such a centralization that any harm—the least—can result from it. No county is so large that the acts of its Board of School Supervisors would be beyond the reach of fair criticism and review; nor any so large that the power to control the school affairs of the county would be so large and so dangerous that it could not be safely entrusted to half a dozen of its best citizens.

The German system of education has been much admired, and justly so. Its results are truly wonderful—accomplished, as they are, only by the most thorough supervision and careful discipline. If I correctly understand that system, their scho teachers are government officers, duly appointed to a particul school and retained, at the pleasure of the government, so lo as successful. It thus transpires that the educating is th oughly done. There is no shirking, and no sham. It is, p haps, the best feature of the German system. The plan p

posed is a kindred one. It differs in that it makes the appointing board an elective one, thus reserving all rights to the people.

Many have pronounced our public school system a failure. Such are not cynics or aristocrats, but honest critics. All admit that it does not accomplish what it should. This evil is not to be found in one part or another, but may be here and there throughout the whole. It must be eradicated little by little. Whenever there shall be found any part which seems more defective than the rest, it must be modified or rejected, and another substituted. Our system for the examination of teachers is a great improvement upon that in use in other portions of the land; may we not improve in a like degree our system for the government of the schools?

GEO. F. BAKER.

[*Condensed from Findley's Manual of Industry.*]

GARDENING FOR SCHOOLS.

[We offer these articles to the school-boys of California, believing that no occupation is more pleasing, interesting, healthful, and at the same time useful for the children as well as the parents, than the cultivation of a small garden-spot. Parents truly desiring the welfare of their children, will kindly aid us by interesting their children in these articles. These articles also offer many facts, worthy to be discussed in the school-room.]

I.

§ 1. Gardening is not only a pleasure and a diversion, but also a necessary occupation, and one which supplies the means of living, both from its productions and the labor it requires, to large numbers of mankind. It is necessary, pleasant, and profitable, and instruction in the art of gardening, with the practice of it, is one great means of rendering young men industrious, useful, healthy, contented and prosperous in after life.

Gardening embraces the cultivation of the kitchen garden and the orchard; this is termed Horticulture. The distinguishing difference between gardening and agriculture is, that in the operation of the former we cultivate land on a small scale, but in those of the latter, upon a large scale.

Horticulture comprehends the cultivation of every description of root, herb, plant and fruit, whether employed in cookery or used in the dessert.

Gardening also embraces Floriculture, "or the culture of flower-gardens, botanic-gardens, shrubberies and pleasure grounds." Arboriculture means the culture of shrubs, and of forrest trees, the timber of which is employed for building, and for various purposes in the arts and in general economy. Lastly, to landscape gardening belongs the formation of gardens, lawns, roads, lakes, ponds, artificial scenery which are nomiated ornamental or picturesque.

§ 2. By the term *soil* is understood a primitive earth, or a combination of earths in a state of mixture with organized matter, fit for the growth of plants. The surface of the earth on which plants have grown and decayed, is properly denominated soil, while the earth at a foot or more beneath the surface, commonly called subsoil, is comparatively without organized matter, and is therefor properly denominated earths, clay, sand, gravel and rocks, or stones as the case may be. Generally speaking, the surface of the earth partakes of the nature and color of the subsoil or rock on which it rests.

It is here necessary to state, that the earths which most abound are silica (silix, commonly called flint) lime, alumina (called also argil or clay,) and magnesia. Silica which constitutes the siliceous or flinty sand of our seashores, is universally diffused. Water passes so freely through it, that no vegetation can thrive in it when unmixed, in consequence of its drying so rapidly.

Lime is also abundantly and widely distributed, usually in the form of chalk, and what is termed limestone or carbonate of lime. Lime enters largely into the composition of animal bodies, forming a constituent part of the bones of animals, and also of shells. Lime, and especially its phosphate, is valuable as manure.

Alumina or clay, which is employed for an infinite number of purposes, is seldom found pure in nature; it enters largely into the composition of rocks. Its most frequent forms are plastic clay, slate rocks and felspar, a composition of alumina and silica, with a small portion of lime, of potash (alkali) and of oxide (rust) of iron. One of the particular properties of alumina, is that of not permitting water to pass through its substance. (Natural reservoirs of water in the interior of the earth.)

Magnesia is less abundant in nature than either silica, lime, or alumina. It enters into combination with other earths. Serpentine, a greenish rock, so common in the vicinity of San Francisco and other places, contains from 33–44 per cent. of magnesia.

In addition to the earths named may be mentioned certain salts, such as potash and soda.

Pure clay, silix or lime, when alone, is barren. Every cultivator of a garden is aware that the addition of clay gives cohesion to sandy or gravelly soil; that sand and gravel, when mixed with a clayey soil, diminish its tenacity; and that these changes permanently increase the productive powers of the respective soils.

A soil is termed wet when habitually wet; and dry when habitually dry. Soils, especially clays, on retentive subsoils, are habitually wet. Soils on porous subsoils, especially gravel and gravelly loams, are habitually dry. The most productive soil that which is so constituted as to maintain such a degree of moisture as may be required in very dry, and only to give a healthy supply of it to the plants in very wet, seasons.

Alluvial soil is formed by the accumulation of minute particles of earth and light vegetable matter, washed from the surface of the higher ground by the water of rivers and torrents in the time of floods. It is fertile, easily cultivated and fitted for the production of every variety of crop.

The nature of the materials which compose peaty (peat, moss or bog) soil, is vegetable in character. Its subsoil—generally clay—is always retentive. Peaty soil is naturally poor; but when mixed with other soils, and well cultivated, it becomes highly productive.

Loam is a term appled to any sort of earth, containing a sensible admixture of decomposed vegetable matter. A loam is termed clayey or sandy, according as clay or sand may predominate.

Mould is a term applied to either a clayey, a sandy, or gravelly loam, having been under cultivation, and enriched by the application of decomposed animal and vegetable matter.

Humus is a term applied to decomposed vegetable matter.

BOTANICAL GARDENS.—It is interesting to learn that the efforts made by the various botanical gardens and experimental sta-

tions in Australia, have been most successful. Two of the colonies—Victoria and Queensland—are now able to bring into the market, an appreciable quantity of native grown sugar, extracted in the one instance from beet-root, and in the other from sugar cane. There appears, also, to be little doubt that almost every semi-tropical plant may be cultivated in some part of the provinces. Paragraphs 66 and 67 of the Act to create and organize the University of California, remained a dead letter thus far, else a similar statement might be made for this State.

TEMPERATURE.—Thibet is stated to be the hottest country in Summer, its temperature in the shade rising to 150°. In Senegal and in Guaduloupe, the Summer temperature is said often to reach 130°. Throughout the delta of the Ganges, the mercury rises to 120°. The European mean Summer temperatures vary from 70° to 90. Iceland records its midsummer heat at 45° and Nova Zembla at 34°.

THE PHYSICAL PROPERTIES OF SOIL.

1. *Absorption or Retention of Water.*—The property of retaining water is of the greatest import. Sand retains only from 25 to 26, loam, 50, clay, 70 to 74, lime, 80, rich mould, 89, and pure loames even 180 per cent. of its own weight. These figures express the quantity of water necessary for the saturation of the various soils mentioned, or rather that quantity of water retained by capillary attraction. A clayey soil will yet sustain its vegetation when 1-10 of its capillary water remains, while the vegetation upon a sandy soil will begin to suffer when from ½ to ⅔ of the quantity of water necessary for saturation is lost. This defect of sandy soils is, in a measure, ameliorated by rapid and sudden changes of temperature, which condense the vapors rising from the subsoil, and also those contained in the atmosphere.

2. *Cohesion of Soils.*—This property is possessed by sand in the least degree, and by pure clay in the highest.

3. *Evaporative Power of Soils.*—Sand completely saturated with water will lose, at a temperature of 194 degrees 88.4 per cent. of

it within four hours; a loss much greater than that of any other soil. Humus loses under the same conditions but 20 per cent. If we bear in mind, then, that humus will absorb water to the extent of 180 per cent of its own weight, and will emit but little, we may form a tolerably correct idea of its influence on vegetation, especially in a dry climate.

4. *Shrinkage of Soils.*—Shrinkage caused by drying differs largely in different soils. Sand shrinks but little, hardly any, while humus possesses this property in the highest degree. Peat shrinks one-fifth in bulk, and strong clay nearly as much.

5. *Absorption of Moisture from the Air.*—This property must not be confounded with that of retention, treated of under number one. In a dry and hot climate like ours, the property of soils of absorbing moisture from the atmosphere is of the greatest import, and should be carefully studied. Sand absorbs no moisture, clay, 24.5; lime, 17.5; humus, 60 per cent., at a temperature of 59 to 65 degrees. Vegetable tissue possesses this property in a high degree; fine straw will absorb to the extent of 45 per cent. of its own weight. What shall we think, then, of the wisdom of farmers who annually destroy their straw by fire, or haul manure to the creeks to be swept away by the floods? We destroy our forests, thereby permitting high winds to sweep over large areas unchecked, and burn annually the straw, and then complain of insufficient moisture. Certainly there is no want for instruction in Natural Sciences in our schools!

"This world, ere long, a world of tears must weep."

6. *Absorption of Oxygen.*—This depends entirely upon the various constituent parts of the soil and its porosity. Here again humus is of the greatest import, for it makes soils porous and changes, while decaying, the penetrating oxygen into carbonic acid, the most needful element in the nourishment of plants.

7. *Conductibility of Heat.*—Soils differ materially in regard to this property. Some lose or emit heat quicker than others. Sand heated to 144.5 degrees cooled off to 70.2 degrees within three and a half hours, while humor, subjected to the same treatment, required but one hour and forty-three minutes. This experiment will help us to explain the comparative rank

growth of vegetation on the drift-sand along the sea-coast; and assist us also in the explanation of the cause of frosts in low places where decayed vegetable matter generally accumulates.

8. *Temperature of Soils—Ability of Being Heated by the Rays of the Sun.*—Here come into consideration color, degree of moisture, density, and the angle under which the rays of the sun strike the surface of the soil. Humus, being of a dark color, is heated more than any other kind of soil.

9. *Capillary Action of Soils.*—Some soils when immersed in water will become moist, or attract the water upward. In a sandy soil the water will rise from a subsoil by means of capillary action from 6 to 10 inches, in clayey soil from one to two feet, in peaty soil as high as three feet. In mixed soils it is generally from one to one and a half feet. Water rising from the subsoil will evaporate as it approaches the surface, and leave the mineral substances which it holds in solution. This offers an explanation why fields, although exhausted, still produce a tolerable crop without manuring.

COSMOS.—In the year 1845 appeared the first volume and in 1846 the second of Humboldt's Cosmos. As comprising a view of the whole created universe, depicted with the most wonderful sympathy, the book is as it were a canon, forming a key to everything that was known of nature at the time. A *Divina Commedia* of Science, the Cosmos embraced the whole universe in its two spheres, heaven and earth. Under the leadership of the great searcher of nature, as Dante once by the hand of Virgel, we climb from the depths of the universe with its furthest nebulæ and double star down through the star depths to which belongs our solar system, to the air and sea-enveloped earth, where form, temperature and magnetic condition are unvailed to us; then to the wealth of organic life which, stimulated by the light, unfolds itself on its surface. It is an overwhelming picture of nature of surprising beauty of outline, abounding in grand perspective with the most careful execution of the smallest detail. Three discoveries, however, made during the last quarter of century have entirely changed the position of natural science: The mechanical equivalent of heat, spectrum analysis and the Darwinian theories.

DEPARTMENT OF PUBLIC INSTRUCTION.

THE February semi-annual apportionment of the State School Fund, has been postponed until March 1st, owing to the delay experienced by the Controller of State in obtaining the supplementary settlements of County Treasurers.

A COUNTY SUPERINTENDENT submits the following case: —— School District contracted last year a debt which could not be paid at the end of the school year. This year the district established two schools, and maintained them four months. The Trustees thereupon, make the following calculation: Two schools maintained four months each, give eight months' schooling as provided for by law; the schools are therefore closed, and the balance of school funds to the credit of the district will be used for paying the indebtedness contracted last year. The County Superintendent asks for our decision. We respond: That a district must establish as many schools, *i. e.* departments, as are needed to afford all the children of the district, equal educational advantages (section 1618); that the schools so established, must be maintained for an equal length of time during the year (section 1619), and that all districts not excepted under section 1848, must maintain their school or schools for at least eight months, and that to provide funds enough to maintain the schools this minimum length of time, section 1846 provides that the Board of Supervisors in each county must * * * levy a special school tax upon the property in each school district in which there is a deficiency, for an amount which, together with the State and county money to be received, is sufficient to maintain the school (or schools) for eight months during the year. If there are not sufficient means to maintain all the schools or departments established, then the several schools or departments must be maintained in the following order: Primary, Grammar and High School departments or schools. In other words, if the funds run short, the High School department is closed first; if the funds run still short, then the Grammar department. Restricting ourselves to the case above cited, our decision is that the Trustees must maintain each of the two schools organized in their district, eight months, and no unexpended balance can be on hand at the end of the present school year, except both schools have been maintained at least eight months. And furthermore, no outstanding debts contracted last year can be paid until at the *end* of the present school year, and then only if after maintaining both schools at least eight months, an unexpended balance is on hand.

ELECTION for Trustees must be held under the provisions of sections 1593 to 1602. To one point only is it necessary to draw attention: A ballot, according to section 1186 of the Political Code, "is a ticket folded in such a manner that nothing written or printed thereon can be seen." The other provisions of the Code relative to Elections do not apply to elections for Trustees. Such, at least, is the opinion of the Attorney General. But all elections for voting District School Taxes, must be held, as nearly as practicable, in conformity with the general election law. For the benefit of school officers we give a synopsis of the provisions of the Code under which an election for voting a District School Tax must be held. The time and place of holding the election, notice of election, appointment of Board of Election, contents of ballots, are prescribed in the School Law. The Great Register of the county must be

used; a Poll List must be kept; the ballot paper must be of the size, color, weight, texture and appearance as prescribed by law and designated by the Secretary of State; ballots must be folded in the manner prescribed by law; no tickets must be distributed or opened within one hundred feet of the polls. Marked ballots, and ballots not conforming to requirements of law, must be rejected.

FOR the March Quarterly Examination the State Board has prepared no papers on Reading and Penmanship. County Boards will frame their own questions and exercises in those studies. All examination papers which are to be submitted to the State Board of Examination, must be sent either by Wells, Fargo & Co.'s Express, at the sender's cost, or by mail, *full letter postage prepaid*—three cents for every half ounce or fraction thereof. Any set of papers not sufficiently prepaid, will not be taken out of the Post-office.

LAST month, we explained in detail the manner of making out the Teacher's Report. We now take up the Census Marshal's Report. County Superintendents, before *accepting* a report, ought to be satisfied that said report is correct. The usual practice is to file a report without examination, until the time comes to collate the census statistics, and then gross errors and omissions are frequently discovered. To correct these causes a great deal of trouble, and entails a loss of sometimes valuable time. Before accepting a report, then, and making out a warrant for the services rendered by the Census Marshal, County Superintendents must satisfy themselves on the following points: 1 That persons living near the boundaries of contiguous districts are listed in but one district. 2 That the census children, *i. e.*, the number of white children between five and fifteen years of age, the number of negro children between five and fifteen years of age, the number of Indian children between five and fifteen years of age who live under the guardianship of white persons, are properly accounted for in one or more of the following three columns: (a) Number of children between five and fifteen years of age who have attended public schools at *any time during the school year;* (b) number of children between five and fifteen years of age who have attended private schools, *but no public* schools, during the year; (c) number of children between five and fifteen years of age who have not attended school at any time during the school year.

The Census Marshal must be very careful not to list in column (b) any census child which has attended public schools at any time, no matter how short, during the year. Secondly, attention must be given that all the census children are accounted for. To give a few examples: The Census Marshal of Carmello District reported the total number of census children at 140, and yet not a single child was reported as attending public schools, or private schools, or no schools. Now, the County Superintendent instead of accepting such report ought to have required the Census Marshal to properly account for the attendance or non-attendance at school of each census child, and then there would be no occasion to insert in the Annual Report, "incomplete returns." There will be no incomplete returns if County Superintendents attend to their official duties. In Grass Valley, the School Census Marshal reported 888 census children, and certified that 488 had attended public schools, 235 attended private schools, and 75 no schools, total, 793 children, leaving a balance of 95 census children unaccounted for. Now, a child must either have attended a public school, or a private school, or no school. After a great deal of trouble and loss of time, we ascertained

that the report should have given 583 as having attended public schools, 235 attending private schools, and 70 no school. To take the case of a whole county. The Superintendent of Nevada County reported 4,134 white census children, 2,902 of whom had attended public schools, instead of 3,031, the correct number as afterwards ascertained. 422 attended private schools, instead of 444, and 704 attended no schools, instead of 659. 38 Negro census children were registered and only 31 accounted for; of 7 Indian census children not a single one was accounted for. Now, it is a fact that not a *single* county sent in a correct report of the census statistics, and Superintendents may imagine what work we had to correct the fifty reports; and all this might have been prevented if County Superintendents had used the proper care and diligence in checking the Census Marshal's Reports. To conclude: In a Census Marshal's Report, or on the fourth and fifth pages of the County Superintendent's Annual Report, the number of white children attending schools, plus the number of white children attending any private schools plus the number of white children attending no schools must equal the total number of white children between five and fifteen. The same with Negro and Indian children. A new edition of Census Marshal's Reports will be printed, in which particular care will be taken to call the attention of Census Marshals to the above points. These reports will be ready for distribution in time for the taking of the next school census. County Superintendents will, therefore, see that only the new blanks are used.

ACCORDING to section 1,468, of the Political Code, the Board of Examiners of each county must, before the first day of May in each year, hold competitive examinations of all qualified persons desiring to be admitted from such county as pupils in the Normal School. If not too late, County Boards may examine such applicants at the March examination. This will avoid an extra session of the County Board. The law makes no provision to pay the expense of such extra session. The examination must be held in the same mannner as examination for third grade county certificates.

[Extract from a private letter.]

Prof. Agassiz is preparing for an institute of ten or twelve weeks in midsummer at Nantucket, to be occupied with Natural History. The Professor is to be assisted by some of the ablest naturalists of the country. He hopes eventually to secure the coöperation of the common schools to such an extent, that of those which can not each afford a teacher of Natural Science in one or more departments, several will unite in securing a competent instructor who shall devide his time and instruction amongst them. There is not a more healthy, jolly, or busy man in Cambridge than he. Prof. Gray lectures four times a week, is as hearty as he can be, and when not lecturing, is busy in his study, the herbarium, or in pushing along the special students. Prof. Whitney is to be met quite often with a preoccupied look on his face and a bundle under his arm that is very likely a map of California. Hon. B. G. Northrop has entered upon an interesting course of lectures on "American and Foreign Systems of Education," at the Lowell Institute. Miss Peabody discusses Kindergartening, Saturday afternoons. Dr. I. I. Hayes is just about closing a very entertaining course on "Arctic Discovery." Prof. N. S. Shaler has gone to England for his health, and will not return before June next. Dr. Gray says it will not be long before we shall have a Botany of California.

UNIVERSITY OF CALIFORNIA.

ANNUAL REGISTER.—The Annual Register of the University has been delayed in consequence of some proposed changes in matters of detail, but it will be issued during the present term. The term closes, April 2d, and the third term opens April 17th. Commencement will be July 16th.

The forthcoming Register for the year 1872—3, will give nearly the following summary:

I. CANDIDATES FOR A DEGREE.

1. *In the Department of Science.*—First Class, 7; Second Class, 16; Third Class, 28; Fourth Class, 44. Total, 95.

2. *In the Department of Letters.*—First Class, 5; Second Class, 8; Third Class, 12; Fourth Class, 21. Total, 46. Whole number of candidates for a Degree, 141.

II. STUDENTS AT LARGE.

In the Department of Science, 8; in the Department of Letters, 3. Total, 11.

III. SPECIAL COURSE STUDENTS.

In the Department of Science, 4; in the Department of Letters (of whom 6 study Latin or Greek), 29. Total, 33. Whole number of students, 185.

The requisitions for admission remain as heretofore. Candidates for the scientific department will be examined in the following subjects:

Higher Arithmetic, in all its branches, including the extraction of square and cube roots, and the metric system of weights and measures. *Algebra*, to Quadratic Equations. *Geometry*, first four books (Davies' Legendre or Loomis). *English Grammar, Geography, History of the United States.*

Candidates for the College of Letters will be examined in the following subjects, in addition to those mentioned above:

Latin Grammar; Cæsar, four books; *Virgil*, six books of Æneid; *Cicero*, six orations; *Greek Grammar; Xenophon's Anabasis*, three books.

The literary department has also a modified course, in which an equivalent study may be substituted for one ancient language.

THE University is expected to occupy its new site at Berkeley, at the beginning of the next academic year—(September, 1873). One building is already erected, and another is to be begun without delay.

THE SITE AT BERKELEY.—During the last three weeks, the work upon that portion of the University grounds designated for an arboretum and botanic garden, has been vigorously prosecuted. The ground has been ploughed and subsoiled, and a large number of the trees donated by Mr. Nolan, have been planted. The Coniferæ of the Pacific Coast and some foreign, in all eighty species; thirty distinct species of Eucalyptus, twenty-seven of Acasia, with a large collection of Australian and other shrubs. This generous gift was followed by valuable donations of decidious trees from Mr. Kelsey, of Oakland, Messrs. R. Willamson and I. N. Hoag, of Sacramento, and others. As far as soil and exposure will admit, the arboretum is planted in accordance with the arrangement of the natural order. Thus the pines, firs, cypress, junipers, form a distinct section, so also oaks, walnuts, etc. Space is allowed for their foreign allies, thus providing for thorough experiments in acclimation. Each *tree lable* is distinctly

lettered with the natural order, generic, specific and common name, also the habitat. Its number corresponds with that on the Catalogue (to be published hereafter), which will contain the age of tree, date of planting, name of donor, and any important fact respecting its uses. The Botanic Garden is laid out on the same plan, groups of shrubs and herbaceous plants, following each other in scientific order, but without formal arrangement, along paths and drives which are included in the pleasure grounds. A garden for Economic Botany, containing all plants useful for food, clothing, manufactures, medicines, etc., with nursery and testing ground attached, has been proposed, with the design of exhibiting one or two specimens of each in perfection; and near this, *an orchard of specimen fruits*, to contain one or more trees of every species which is known to succeed in this climate, with space reserved for experiments with new varieties.

STATE NORMAL SCHOOL.

The present school year will close on Thursday, the 27th of March. President Gilman, of the University, will deliver the annual address.

THE INSTITUTE CLASS OF THE STATE NORMAL SCHOOL.—This class was organized on the 13th of January, and closed on the 14th of February. Ten counties were represented by thirty teachers. Including the teachers of San Jose and Santa Clara, whose schools were closed a part of each week in order to afford an opportunity for them to attend the Institute, there were more than one hundred teachers in attendance. To this number might be added the one hundred and fifty pupils of the Normal School—more than half of whom are practical teachers. The evening lectures of the President and Professors of the University, and others, were highly appreciated by the largest audiences that ever attended a course of lectures in San Jose. All things considered, the Institute has been a gratifying success.

STATE NORMAL SCHOOL REPORT FOR JANUARY.—Number of pupils in the Senior Class, 24; number of pupils in the Junior Class, 90; number of children in the Training Class, 42. Thirty-two counties are represented in the regular Normal School classes.

W. T. LUCKY, Principal.

COUNTY SUPERINTENDENTS, in ordering blanks, will please specify *how many* of each kind they need. Teachers writing on their own business, or asking for blanks, reports, etc., must send stamps for return postage. Examination questions are printed only for the use of County Boards of Examination, and not for general distribution. School officers must apply to their respective County Superintendents for all blanks, etc.

THE State Board of Education has established the following scale of percentages: For Educational Diplomas, ninety per cent.; for first grade State Certificates, eighty-five per cent.; for second grade State, eighty per cent.; for third grade State, seventy-five per cent. For County Certificates the *minimum* percentages are: For first grade, eighty per cent.; for second grade, seventy-five per cent.; for third grade seventy per cent. In other words, County Boards of Examination cannot grant Certificates upon a *lower* percentage than the one fixed by the State Board of Education, as given above, though any County Board may raise the percentage of any or all grades.

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CLINTON CUSHING, M. D., Professor of Obstetrics and Diseases of Women.
C. N. ELLINWOOD, M. D., Professor of Physiology.
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The REGULAR COURSE of Lectures in this institution commences on the first Monday in June, and continues until November.

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OFFICIAL ORGAN OF THE

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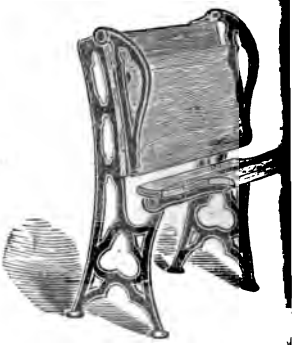

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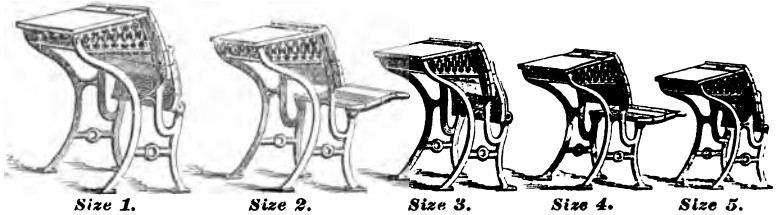

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THE

CALIFORNIA TEACHER.

APRIL, 1873.

VOL. X. SACRAMENTO. No. 10.

[*For the California Teacher.*]

GUIDES FOR INSTRUCTION IN LOCAL GEOGRAPHY.

BY MRS. LANE.

III. FINAL STEPS INTRODUCTORY TO THE STUDY OF GENERAL GEOGRAPHY.

HISTORY.—San Francisco, the capital of San Francisco County, is in latitude 37° 46′ N., longitude 122° 23′ W. It is built chiefly in the northeastern part of a peninsula lying between San Francisco Bay on the east and the Pacific Ocean on the west. The peninsula is eighteen miles wide at its base and six miles wide at its northern point.

San Francisco Bay lies between Contra Costa and Alameda Counties on the east and San Francisco and San Mateo Counties on the west. On the south it touches the northern point of Santa Clara County, and on the north a narrow strait, three miles in width, connects its waters with those of San Pablo Bay. It is about fifty miles long and eight miles wide. It communicates with the Pacific Ocean by the Golden Gate strait, which is one mile in width.

San Francisco Bay is supposed by some to have been discovered in the year 1579, by Captain Drake. Drake was a distinguished English navigator. He afterwards became Admiral in

the navy of his native country, and was one of the founders of the naval greatness of England. Having been knighted by Queen Elizabeth, he is known in history as Sir Francis Drake. Others believe that the bay discovered by him was the one known at present as Drake's Bay, lying a little north of the Golden Gate strait and indenting the western coast of Marin County. Drake named the country New Albion; and on some old English maps we find California represented under that name.

The other and more probable history of the discovery of San Francisco Bay, is that nearly two hundred years after Sir Francis Drake's visit to, and, as he erroneously believed, discovery of California, the Spanish Government wished to secure possession of the territory of California, a map of which had been drawn up at Madrid as early as the year 1541. For this purpose the Spanish Government sent instructions to the Viceroy of New Spain to found missions and presidios at San Diego, Monterey, and various other parts of the northwestern country. The government of these settlements was put under the control of monks of the Order of St. Francis—two monks being placed in charge of each mission. All the missions were indebted, for their beginning and chief success, to subscriptions contributed by the Church in Spain and Mexico, and forming a fund known as "The Pious Fund of California."

After establishing the Mission of San Diego, the missionaries intended to travel to Monterey and there found a mission. They, however, wandered from their route, and journeyed on till they reached the bay of San Francisco, which is said to have derived its name from the following circumstance: Father Junipero, before leaving Lower California, had received instructions from the agent of the Spanish Government respecting the names of the proposed missions. The names of the saints to whose special patronage they were to be entrusted had been carefully selected from the calendar, but among them that of St. Francis did not happen to occur. "What!" exclaimed the missionary, "is not our own dear father, St. Francis, to have a mission assigned to him?" The agent replied: "If St. Francis wishes a mission let him show you a good port, and that shall bear his name." Accordingly, when the missionaries, in traveling north-

wards, discovered the bay mentioned, they exclaimed: "This, then, is the port to which the visitador referred, and to which the saint has led us—blessed be his name!" They forthwith named it San Francisco Bay, set up a cross, as was their custom, and returned to San Diego. This was in the year 1769.

It was not till the year 1776 that another expedition started from Monterey—traveling by land. It arrived on the 27th of June; and on the 9th of November, 1776, that being the day of Saint Francis, founded the Mission of San Francisco de Assisi, which subsequently bore the name Dolores. Besides the mission buildings, consisting of church, dwelling, work shops, etc., there were erected at the same time, and about four miles distant from them, a presidio and a fort. The names of the two monks who founded this mission were Francisco Palou and Benito Cambon, both natives of Spain. The mission remained under the complete control of the missionaries for fifty eight years—until 1834, when the missions began to pass into the hands of the civil officers of California. They had hitherto been very prosperous, their wealth consisting chiefly in cattle, but also in wheat, barley and merchandise. After passing from the control of the Church to that of the civil government their downfall was most rapid.

One of the first effects of secularizing the mission, thus placing the country under the control of the civil powers and encouraging colonization, was the establishment of the village of Yerba Buena. About two and one-half miles northeast from the mission was a small cove, one mile in width, and extending about one-half mile into the land. It was situated between two projecting points of land, now known as Clark's Point and Rincon Point. This cove, along whose front line the water was forty feet deep, has since been filled in, and where, in 1849, large ships rode at anchor, are now paved streets. The cove was named Yerba Buena. The meaning of Yerba Buena is *good herb*. The name is given to a mint which grows in this region in the form of a vine running upon the ground. The leaves are opposite, and it bears a tiny flower. The plant is very fragrant, is used for a tea, and is said to have medicinal properties. An island bearing the same name lies in the bay about two miles east of the city.

On this cove a small Spanish village had gradually grown up, bearing the same name as the cove. The date of its foundation is disputed; but we know that no village of that name existed before the year 1835. The first dwelling was erected in that year by Captain Richardson. It was simply a large tent, supported on four redwood posts and covered with a ship's foresail. In 1841 the cove was first visited by an American war vessel, the sloop San Luis. Whale ships had come here for supplies as early as the year 1822. In this latter year trade began between California and the United States and England, California's exports consisting mainly of tallow and hides.

The second house in Yerba Buena was built by Jacob Primer Leese. This was erected on the lot which now forms the corner of Clay and Dupont streets, and adjoining the lot on which stood the tent of Captain Richardson. This house was finished on the morning of the Fourth of July, 1836, and these two houses formed the beginning of San Francisco. In eighteen years from that time there was around that spot a population of 50,000. In twice that time—thirty six years—we have a population of 178,000. Mr. Leese celebrated Independence Day and the completion of his house by a grand banquet, to which guests were invited from far and near. Outside of the building floated the Mexican and American flags—the first time the latter was displayed on the shore of Yerba Buena. The first child born in Yerba Buena was the daughter of Mr. Leese and granddaughter of General Vallejo. Her birthday was April 15, 1838.

So late as 1844 Yerba Buena contained only about one dozen houses, with a population of not more than fifty persons. During the years 1842 to 1846 many thousands of emigrants crossed the Rocky Mountains and the Sierra Nevada to settle in California. Others came by the Isthmus and around Cape Horn. The Mexican Government tried in vain to stop this current of emigration.

The war of 1846 between Mexico and the United States terminated in the cession of Upper California to the latter Government.

The first chief magistrate, or *Alcalde*, of San Francisco, was Washington A. Bartlett. On the 30th of January, 1847, Mr. Bartlett published an ordinance changing the name of the town

of Yerba Buena to San Francisco. At this time there were only about fifty houses in the place and a population of 375, not reckoning the Indians. By this change of name Benicia, which until then had borne the name of Francisco, was obliged to change its appellation. It then assumed its present name, Benicia.

The growth of San Francisco received a severe check from the report of the discovery of gold. This discovery was made in the month of February, 1848, on the property of Col. Sutter, in El Dorado County. The news spread rapidly, reaching San Francisco early in the Spring of the same year. A large part of the population hurried, in the greatest excitement, to the placers or gold diggings. San Francisco soon gained by this, however, more than it at first lost; the bay was filled with shipping from many parts of the world, while the fortunate miners returned here to squander or spend their gold; others preferred to remain here and receive the gold of the miners in exchange for supplies, rather than themselves to endure the hardships of a miner's life.

Towards the end of the year 1848, the first rumors were heard of a party or society formed, as the members pretended, for mutual assistance in sickness or danger. This society was called the "Hounds." It was composed of ruffians and villians from all parts of the world; they became so bold as to parade on Sundays, armed with bludgeons and revolvers; at night they attacked citizens of every class, robbing them, destroying their buildings, maltreating and murdering them. At last, in July, 1849, their conduct became insufferable; the respectable portion of the community combined, organized a police force, arrested several of the "hounds," tried them, and sentenced some to be sent to any Penitentiary the Court might indicate. These sentences were not all carried out, but the society was by this means broken up. The success of the people's effort to free themselves from the power of these ruffians afterwards (ıcouraged them in the formation of the famous "Vigilance ( )mmittee."

Associations under the latter name were formed not only in ı ın Francisco, but in Sacramento, Stockton, San Jose, and other ı wns; they aided each other in watching and pursuing the (stroyers of peace and good order throughout the country.

The discovery of gold in California had caused the immigration of an immense population, strangers to each other, and strangers to the laws of the land. The legal institutions which had grown up with the previous comparatively small population were insufficient for the protection of this sudden increase. Not only the reputation of its wealth, but also the condition of its society, made California especially alluring to desperados, rascals, and criminals from all parts of the world. While America and the different countries of Europe sent a share of such people, the large proportion of them were probably convicted felons sent by England to New South Wales and Van Dieman's Land; from there they easily managed to make the comparatively short voyage to California. Once here the opportunity was but too favorable for the resumption of their former mode of life; for here "prosecutors and witnesses were few or too busy to attend to the calls of justice; here jurors, not knowing the law and eager to be at money-making again, were apt to take hasty charges from the bench as their sole rule of conduct; here Judges, chosen by popular election, were either grossly ignorant of law, or too timid or careless, corrupt, or incapable to measure out the full punishment of crime; here the laws themselves had not yet been methodically laid down, nor the forms and procedure of legal tribunals digested into a plain, unerring system."

These desperados leagued together for mutual protection, assistance, and rescue, had their places of rendezvous where the police, few in number, poorly paid, and often in league with the criminals, hardly dared to enter. Moreover, if a criminal happened to be arrested, escape was rendered easy by acceptance of bail entirely worthless, insecurity of prisons, false swearing of witnesses, dishonesty of jurors, and incapacity or venality of Judges.

At length, in 1851, crime, in the forms of incendiarism, burglary, robbery, and murder increased to such an alarming extent that the public became impressed with the idea that the Courts were the *protection* and *refuge* instead of the *terror* of rogues; a great number of the most influential, orderly, and respectable citizens of San Francisco then formed themselves into an association, with constitution and by-laws; the associa-

tion was called the "*Vigilance Committee;*" it took upon itself to establish good order in the community, and to render life and property secure, although in doing so it was obliged to act independent of the legally appointed civil officers. The proceedings of the committee were attended with heavy expense, which was borne by voluntary contributions. They exercised the authority they assumed in a quiet and dignified manner. One of the provisions of their constitution was that no person brought before the committee should be punished without a fair trial and conviction. They provided themselves with arms and ammunition, drilled their forces, fortified their headquarters, and constructed cells for prisoners. They arrested and tried rogues and dangerous men, some of whom were hanged, some transported, some acquitted. Many who were suspected or were warned by the committee left the country. From all the evidence that can be obtained, it is not supposed that a single instance occurred in which a really innocent man suffered the extreme penalty of death. Those who were executed generally confessed their guilt and admitted the punishment to have been merited.

The Vigilance Committee having restored the city to a tolerable state of safety and tranquility ceased to act, but did not formally disband. In 1855 the city government had again become exceedingly corrupt, and Mr. King, in the *Bulletin* newspaper, criticised in severe terms its action, commenting particularly on the character of a man named Casey (who had served a term in the New York State Prison), a member of the Board of Supervisors, and who had powerful influence over the political caucuses of his party. He was charged with selling nominations for a price, and with furnishing bullies and ballot-box stuffers to elect his nominees; also with procuring the passage of fraudulent bills through the Board of which he was a member. On May fourteenth Casey murdered Mr. King by shooting him in the street, and then gave himself into the hands of the authorities. The Vigilance Committee, which had never been disbanded, was now put into active operation. The city prison was strongly guarded till the eighteenth, when a formidable force from the committee demanded Casey, who was surrendered by the Sheriff and taken to the cells of the committee.

Charles Cora, a gambler, who had shot Mr. Richardson, the United States Marshal, was also taken from the prison, and after trial, on the twenty-second both were hung in front of the committee's rooms, the people and press sustaining the proceeding. On June 2d a writ of habeas corpus was issued by Justice Terry of the Supreme Court for the rescue of a prisoner in the hands of the committee. No attention was paid to the writ, and on the following day Governor Johnson proclaimed San Francisco in a state of insurrection, ordered out the militia of the city, and commanded the Vigilance Committee to disband and disperse. Very few, even of those opposed to the committee, responded to the call, and practically the power of the State was, for a time, in the hands of the committee. The Governor called on General Wood for United States troops without success, also on the President of the United States. In the meantime the committee continued their labors, banishing prisoners to the Atlantic States, Australia, and the Pacific Islands. Judge Terry in opposing the arrest of a person who was in his company stabbed one of the committee's police; the Judge was subsequently arrested and kept prisoner until the man's recovery. A few weeks later the committee surrendered its power, having, during its administration of public affairs, tried and disposed of some thirty cases brought before them; four of their prisoners were executed, one committed suicide while his case was under deliberation, and most of the others were banished from the State. The ensuing election resulted in the choice of city and county officers favorable to the committee, and the city has ever since been comparatively quiet and orderly.

"Thus by almost a universal—a national—effort, was our beautiful country which had so long contained and been defiled by the sweepings from the prisons and the thieves' alleys of other lands once more made pure, sweet, and safe. Hercules did no greater labor when he cleansed the Augean stable by turning a river through it. The people of California, and more particularly the people of San Francisco, had turned the great stream of justice from its former slow, devious, and uncertain course, and sent its waters headlong to overwhelm criminals and wash society clean from the stains that crime had left."

Education.—The first American school in San Francisco was a *private* enterprise. It was held in a little shanty, and continued about one year, having been opened in April, 1847. In the latter part of the same year the first *public* school house was built. It was a small cottage, its site being the southwest corner of Portsmouth Square, where Brenham Place enters Clay street. This building was demolished in 1850, that the plaza might be maintained as a completely open and unencumbered square. This school house was in early times the general assembly room of societies of different characters, for religious gatherings, and for public amusements. In 1848 the first Board of School Trustees was appointed, and under their supervision the first public school of San Francisco was opened. This prospered for a couple of months; then news of the discovery of gold in the interior reached San Francisco and most of the inhabitants with their children left for the gold region; the Board of Trustees were scattered; there were no funds provided for the support of the school, and, finally, the teacher, left without pupils or salary, was himself obliged to follow in the wake of the general excitement. In 1850 Colonel T. J. Nevins established a school, which was supported by voluntary contribution. In 1851 the city government elected the first *Board of Education*, and this Board appointed Mr. Nevins first Superintendent of Public Schools.

Religion.—The first Protestant clergyman, the Rev. T. D. Hunt, arrived in San Francisco in October, 1848. He was invited by prominent citizens of different religious persuasions to act as chaplain for the town. He first held public religious services in the school house on the plaza. The first place erected especially for religious worship was a tent, situated on Dupont street, between Pacific street and Broadway. For this congregation an edifice was built in New York, and forwarded from there entire, with pulpit, seats, lamps and bell. On its arrival is was erected, in 1850, on Stockton street, near Broadway, id was then occupied by the congregation who had previously orshipped in the tent on Dupont street. Previous to the ection of this building, the Society known as the "First Bap-st Church" had built a house for religious worship on Wash-gton street, between Dupont and Stockton streets.

Benevolent Institutions and Societies.—The sufferings consequent upon the long voyage which most of the earlier immigrants to California were obliged to make, the want of comfortable dwellings to protect them from the inclemencies of the weather, and the absence of many comforts and nearly all the luxuries of life, produced so much sickness, poverty and distress, that, at a very early day, associations were formed for mutual assistance and systematic benevolence. So early as 1849 the Free Masons and Odd Fellows had established lodges, and these were followed by the organizing of a temperance society, Society of California Pioneers (August, 1850), benevolent societies for French, Germans and Hebrews, orphan asylums, both Protestant and Catholic, and many other associations for private benevolence and general usefulness.

Cemeteries.—Perhaps nothing better illustrates the spirit and condition of society in the early times of California than the manner of disposing of the bodies of the dead. In the earlier times, when there was but a small number of inhabitants, the church yard at the Mission had been the general place of deposit for the dead; but when the town had become peopled with a larger population of immigrants, strangers to each other, and with no stronger local interest than the gaining of gold, the living could ill afford the time required for accompanying the dead to a final resting place a mile or two distant, over almost impassable sand hills. Although there was a City Hospital, it was always filled to overflowing; and many a lonely sufferer, found dead, was buried in the sand near the tent which had been the scene of his last suffering. There was a small burying ground on the top of Russian Hill, which some years before had been thus used by Russian settlers, also a dreary spot on the side of Telegraph Hill was devoted to this purpose, and still later a piece of ground near North Beach. In 1850, what was then considered a large tract of land was legally and formally set apart as a public burial place, under the name of the Yerba Buena Cemetery, being the present site of the new City Hall, from which the bones of the dead had to be removed before converting the ground to its present use. In 1854 Laurell Hill Cemetery was dedicated to the slumbers of the dead; and still later, Calvary, Masonic, and Odd Fellows' Cemeteries, have

been alike consecrated. The former of these lies north of Point Lobos Avenue, and the latter south of the same, and all about midway between the Presidio reservation on the north and on the south, the avenue forming the entrance to the Golden Gate Park. Calvary Cemetery is owned by the Catholics. Besides these there are also two Jewish cemeteries, consecrated as the final resting place of believers in the Hebrew faith. These latter two are situated from two to four blocks south of the old Mission Church and about the same distance west of the San Jose Railroad.

Telegraphs.—In 1849 a station house was erected on the summit of Telegraph Hill which commanded a view of the Golden Gate. From there the approach and character of all vessels coming into the harbor was signalled to merchants in the city and others. This was a private enterprise supported by voluntary contributions. Afterwards another station was erected at Point Lobos. This was in full view of Telegraph Hill, so that the signals could be communicated to the latter station, while from Point Lobos vessels could be distinguished many miles at sea. In 1853 the first electric telegraph in California was opened. This was eight miles in length, and extended from San Francisco to Point Lobos.

Newspapers.—The first newspaper in San Francisco appeared in January, 1847. It was published once a week, and bore the name of *California Star.*

We have seen that the Mission of San Francisco de Assisi was at first a Spanish colony, established, with others, by instructions received from the Marquis de Croix, who, as Viceroy from New Spain when the latter belonged to the Spanish Crown, acted in accordance with orders received from Spain. The jurisdiction of the Presidio of San Francisco extended over the town of San Jose de Guadalupe, and the Missions of San Francisco, Solano, San Rafael, Santa Clara, San Jose and Santa Cruz. But the Spanish Court interferred little with the government of California. A commander-in-chief of the garrisons of the presidios was appointed by the Crown. His duty, however, being merely to protect the missions from hostile Indians, he was not allowed to interfere with the temporal government of the Fathers. The commander-in-chief resided in Monterey,

and the Fathers who presided at the different missions exercised full and complete power. They passed laws in regard to property, established penal laws, and even the death penalty, declared peace and war with the Indians, controlled the finances, and held under contribution the Spanish Government itself as well as faithful Catholics all over the world. This state of things continued until the year 1822, when, a revolution occurring in Mexico, the latter country threw off its allegiance to Spain, and in 1824 established a republican form of government. This involved the overthrow of the Spanish power in California. The new Mexican Government assembled a Congress and framed a Federal Constitution similar to that of the United States. This Constitution made New California a *Territory* of the Republic, its population being too small to allow of its constituting a *State*. The Mexican Congress appointed a Commander-in-chief for California. But his authority was merely nominal, and then, as previously, the real power vested in the hands of the Fathers.

In 1835, under the first administration of Santa Anna, an attempt was made to centralize at the Federal Capital the power of the Mexican Government. This greatly changed the Constitution of 1824—a change so much disapproved by California as to give rise to a rebellion there. The Californians appointed Señor Don Mariana Guadalupe Vallejo their General, forcibly expelled the Mexican Federal officers, disbanded the Government troops, and declared themselves independent. The Mexican Government was kept too busy with suppressing factions nearer home to attempt immediate suppression of the rebellion in California. In 1836 Santa Anna was defeated. But the party that succeeded continued the same policy. The excitement in California against it had, however, by that time subsided, and in 1837 the people of the latter country peaceably accepted the new Mexican Constitution and swore allegiance to it.

Meanwhile, particularly from the year 1834, the missions had gradually been passing from the control of the Church into the power of the civil authorities. Finally, in the year 1845, a large number of missions were sold at public auction and the remaining missions rented. The money thus raised was divided

into three parts, of which the missionaries received one, the second was devoted to the maintenance of the converted Indians, and the remaining third was converted into a fund for the support and extension of education and general charitable purposes.

Thus occurred the decline and fall of the missions in California. The Fathers, of course, suffered great loss in thus having the property which they had developed into a source of wealth to themselves seized and sold from them, and this, too, by a Government already their debtor to the amount of $450,000, borrowed from the Fathers by the Mexican Congress for the purpose of carrying on the government.

California, and consequently the Missions, remained under Mexican rule for some time. Meanwhile, during the years 1843, '44, '45 and '46, many thousands of emigrants from the United States settled in California. While the country was becoming rapidly Americanized a quarrel arose between the Mexican officials and the American settlers, in which the Mexican commander attempted to expel the settlers from the country. A general uprising of the Americans ensued, a declaration of independence followed, and active warfare was commenced against the Mexican authorities. Under the lead of Colonel Fremont and Commodore Stockton the Mexicans were defeated. Stockton proclaimed California a Territory of the United States and proceeded to establish a provisional government. The final struggles between the parties took place in January, 1847.

These troubles began before the news of the war between Mexico and the United States, which was declared in April, 1846, and which terminated by the treaty of Guadalupe Hidalgo, ratified in May, 1848. By this treaty California, which had already been conquered by its American population, was ceded, together with other territory, to the United States for the sum of $15,000,000.

The United States Government appointed General Kearney first Governor of the new Territory of California. He was established in this office early in the year 1847.

The rush of immigration was so great that a more substantial government became necessary for a population which soon amounted to a quarter of a million. After some steps taken by

the people themselves, General Riley, Military Governor of the Territory, called a convention of delegates to meet at Monterey, September 1st, 1849, for the purpose of framing a State Constitution. Their labors were finished on the 13th of October, and while the signatures were being affixed the guns from the fort were fired thirty-one times, the thirty-first time for California, which was to become the thirty-first State of the Union. The Constitution thus formed was adopted by the people, and on September 9th, 1850, the Congress of the United States admitted California into the Union.

Peter H. Burnett was the first Governor of the State of California. He was inaugurated on the 20th day of December, 1849.

The government of San Francisco of course changed with that of California. Under the Spanish rule the commander-in-chief of the military forces resided at the presidio of the district over which he had jurisdiction. In 1829 General M. G. Vallejo was placed in charge of the country to the north of Santa Cruz; his headquarters were at the Presidio of San Francisco. He remained here in this capacity until the year 1837, exercising until 1835 both the civil and military functions for the section north of San Jose. In 1835 Governor Figueroa, at the suggestion of General Vallejo, ordered an election of civil officers for the District of San Francisco, fixing the seat of government at the Mission of Dolores; this act dates the first civil organization at this important point. The chief magistrate was called the *alcalde*. The first alcalde of San Francisco was Francisco de Haro.

Under the Mexican laws an alcalde had the entire control of municipal affairs, and administered justice less according to any fixed principle of law than to his own ideas on the subject. When the Americans seized the country they appointed numerous alcaldes, instructing them to administer justice in conformity, as far as possible, with Mexican law and California customs.

On the 13th of September, 1847, the first *ayuntamiento* or Town Council was appointed to assist the alcalde, who found it impossible to transact all the business which now devolved upon him. To the labors of this council the city owes its first systematic municipal foundations.

On September 9th of the succeeding year the largest meeting heretofore ever assembled in San Francisco was held for the purpose of establishing a rate of value for gold dust. Coin was scarce, and as yet no mint had been established; it had therefore become necessary to adopt gold dust as currency. The meeting fixed its currency value at sixteen dollars an ounce.

On the 1st of April, 1850, the first election for county officers took place; the most important office to be filled was that of Sheriff, and, after an animated contest, Colonel John C. Hayes was declared the successful candidate.

On the 15th of April, 1850, the city charter was passed by the State Legislature; on May 1st it was adopted by the inhabitants of San Francisco, and municipal officers elected. Colonel John W. Geary, who at the last election had received a unanimous vote for the position of alcalde, which office he still held, was, by a large vote, elected first Mayor of San Francisco. According to the city charter municipal officers were to hold office only one year.

One of the principal acts of Mayor Geary was to veto a bill which had caused great excitement in the community. This bill, passed by the members of the Common Council soon after coming into office, allowed to each of the Board of Aldermen a salary of four thousand dollars a year; they, however, passed the ordinance, by the legal number of votes, over the Mayor's veto, and revenged themselves by refusing, for a long time, to grant the latter officer a salary. This source of dissatisfaction was corrected by the next Legislature, who declared that henceforward the members of the Common Council should not be entitled to any compensation for their services. The action of the Mayor was warmly approved by the people.

On the 15th of April, 1851, the Legislature passed an Act repealing the charter of 1850, reincorporating the City of San Francisco, and enlarging its limits. By this Act the boundaries of the city were fixed on the north and east co incident with the boundaries of San Francisco County; on the south by a line parallel with Clay street and two and one half miles distant, in a southerly direction, from the center of Portsmouth Square; on the west by a line parallel with Kearny street and

two miles distant, in a westerly direction, from the center of Portsmouth Square.

By an Act, approved April 18th, 1856, the several charters granted to San Francisco were repealed, the government of the *City* and *County* of San Francisco were *consolidated*, and their boundaries fixed and made co-incident. This is called the *Consolidation Act*. It took effect July 1st, 1856. The boundaries of the City and County of San Francisco are as follows: Beginning on the western boundary with a line separating townships two and three south (Mount Diablo meridian); thence running northerly and parallel to the shore so as to be three miles therefrom opposite Seal Rock; thence in the same general direction to a point three miles from shore on the northerly side of the entrance to the Bay of San Francisco; thence to low water mark on the northerly side of the said entrance at a point opposite Fort Point; thence following said low water mark to a point due northwest of Golden Rock; thence due southeast to a point within three miles of the natural high water mark on the eastern shore of the Bay of San Francisco; thence in a southerly direction to a point three miles from said eastern shore and on the line first named; thence along said line to the starting point.

The islands in the bay known as "Alcatraz" and "Yerba Buena," and the islands in the ocean known as the "Farallones," also form a part of the City and County of San Francisco.

The Consolidation Act fixes the day for the election of city and county officers (that of Judges excepted), to be the same as prescribed for general elections throughout the State. In years when no general election is provided for by law, these elections shall be held on the first Wednesday of September.

The city and county officers are elected for two years; their term of office begins the first of January.

Meaning of Spanish names of some places in the vicinity of San Francisco:

Alameda—An avenue of trees.

Saucelito—A little lump of willows.

Contra Costa—The opposite coast.

Point Lobos—Wolves' point.

Point Bonita.—Pretty point.

Farallones—Points of rock in the sea.

Alcatraz—Pelican.

A *vara* is a Spanish yard; it is equal to about thirty-three and one third English inches. The Town of San Francisco was laid out in lots of fifty varas each; six lots constituted one block, bounded by four streets.

Composition of the Soil.—We generally say the *soil* consists of earth. Let us take a handful of earth and examine it. First, let a little fall into a glass partly filled with water; the water immediately assumes the same color as the earth. Now pour off this water and then add fresh water, which is again to be poured off, and so continue to do until the water remains clear. The quantity of earth in the glass has become less, and has also lost its black color. A part of it became dissolved in the water, giving to the latter its dark color. This is called *humus*. It is formed from decayed animal and vegetable matter. What remains is genuine earth; or we may also call it *mineral earth*.

Thus we have seen that the soil consists of *humus*, or mould, and of *mineral earth*.

Every leaf that falls upon the ground decays there and produces a part of the vegetable mould. When there is much mould we say the soil is *rich;* when but little, we say it is a *poor* soil. A marshy soil is low land; which is, consequently, wet most of the time. Poor soil can be made rich by adding manure to it. Manures enrich the soil either by changing its composition, or by acting as a solvent, or absorbent, or they enter the plant as direct nutrition.

Another experiment to be made is to heat a small quantity of earth over a hot blaze until it glows like fire. It now gives out a smell as of something burning. This is the vegetable part of the earth, which part is *combustible*. What remains is *incombustible*—the mineral part of the earth. When the soil is composed wholly of combustible material it is called *turf*. In countries where such soil is found it is used for fuel as we use coal. Turf, or peat beds, are always found in very wet localities. The excessive moisture produces an excessive vegetable growth; this vegetation being still further stimulated by the vegetable mould produced by the vegetation. In the Irish bogs one kind of moss is particularly abundant, growing layer upon layer,

until in some places it reaches a depth of more than forty feet. The surface is usually a sponge like, fibrous mass of mosses, more or less decomposed. At a greater depth its properties as fuel are more valuable, forming near the bottom a black mass which, when dried, resembles pitch, or bituminous coal. Peat is also used for manure. The great region of bogs is the central portion of Ireland. We also find them in Scotland, in the lowlands of Northern Germany, and in our own country, where they are called swamps. They extend along the eastern coast as far as the Gulf of Mexico. With us, however, the vegetable matter is in a more decomposed state; it forms a black substance like mud, and is called *muck*.

Here in this glass is another kind of earth—*sand*. Pour water upon the sand, it does not dissolve; hold it over the fire, it does not burn. The sand consists wholly of fine solid grains.

In another glass is a mixture of coarse grains, some larger and some smaller. This is called *gravel*.

Sand is stone, which the forces of nature have ground or *disintegrated* into these small atoms. Gravel is formed in the same way as sand; it is coarser and generally found mixed with it. The sand and gravel found in the soil are not alway derived from underlying rock, but often from the disintegration of the rocks of surrounding hills, or of regions more or less distant.

Clay is another ingredient of some soils. It is formed by the *decomposition* of rocks, the purest being that of granitic rocks, which may be considered the original source of clays. Clay is a fine sediment usually found along the banks of rivers, and at the bottom of the ocean, ponds, lakes, etc. When this accumulates in any place it forms a dough-like mass of a flaky structure which resembles thin leaves. We find *beds or quarries of solidified clay*, which easily divides into thin sheets of a rather soft rock or stone. The slate used in the school room is one example of this, the rock easily splitting into sheets or layers of the thickness of the scholar's slate, or into thicker lay·s when the slate is to be used for roofing, flagging, flooring, e c. The color of the slate varies, being of a blueish, greenish, or purple color. Besides the clay solidified by *Nature*, there a e many varieties which we solidify by *artificial* processes. Amo g the most important of these are *China* clay, or *kaolin*, used or

the manufacture of porcelain; *potters'* clay, for the manufacture of earthern ware; *pipe* clay, a pure variety of potter's clay, *common* clay, for the manufacture of brick; *fire* clay for fire brick and crucibles; a clay called *fullers' earth*, used among other purposes, in factories for scouring and fulling woolen cloths, etc. But besides beds of clay, more or less extensive, we also find it *intermixed* with the humus, sand and gravel of the soil. Clay has a great retentiveness for water—hence, in very dry countries where but little rain falls, a clayey soil is much more fertile. Also a soil containing much sand becomes increased in fertility by the admixture of clay; because the sand is itself dry, and allows water falling upon it to filter through, and hence not enough moisture is retained for vegetation; but a proper proportion of clay intermixed with sand retains sufficient moisture for vegetation, and the clay itself constituting a very nutritious plant-food, we thus have a fertile soil. Too large a proportion of clay, however, is not favorable to the growth of plants, because it is so solid and compact that the roots of the plants cannot easily penetrate it, and thus grow and develop a sufficient amount of root-surface to absorb food enough for the nutriment of a large plant. The fertility of the soil depends not alone upon its *composition*, but also upon its *chemical* condition and the chemical action or processes taking place within it. The plant derives some of its food from the atmosphere, some from the soil; and it is as impossible for it to live without the latter as witout the former. The plant derives its food from the soil through its roots; and as the roots can only absorb water, all the nutritive elements of the soil must be dissolved in the water before the plant can take them into itself as food. This solvent action of nutritive elements is effected in part by chemical processes. Since water is the medium by which the plant-food of the soil is transmitted to the vegetable organism, a soil destitute of water is, of course, barren. The great deserts of the world are not sterile because they cannot yield the plant-food necessary to vegetation, but because they are destitute of water to transmit the food from the soil to the plant; and wherever in the desert we find a spring, there, too, we find a spot of verdure, notwithstanding the constant sunshine and parching winds.

Land Considered as Garden, Field, Meadow and Forest: Its Animal Life.—How many of you live in houses with gardens belonging to them? What is planted in them? With what are they fenced or enclosed? Gardens planted principally with flowers, shrubs and ornamental trees, are called *ornamental* gardens. We also hear of *botanical* and *zoological* gardens. Who will tell me what is meant by such? What would you call a place devoted to the cultivation of peas, beans, celery, salad, and stawberries and other kinds of berries? What name would you give to an enclosure filled with apple trees, cherry trees, plum trees, peach and other fruit trees?

In riding through the country we see land planted and cultivated on which are growing chiefly corn, wheat, rye, oats, etc. What name is applied to such places?

If only grape vines are found, what name?

What is a *meadow?* A *forest?*

What do we mean by *grazing* land?

What animals live in our gardens, fields and forests?

All ground which is planted and tilled is called *cultivated* land; what it produces is called the *crop*. That which grows without cultivation is said to grow wild.

Man cultivates the earth, dressing it with verdure, as he clothes himself with raiment; nature, with wild vegetation clothes the earth, as she does most of the animal kingdom; as we vary the color of our clothing, so the fields and trees, at different seasons, put on different colored robes, as the grain field that exchanges its green dress of Spring for a golden colored one in Summer; and in cold countries nature wraps the earth in an ermine-like mantle of snow.

Neighboring Waters.—We have already learned that the water of the pools and puddles of the street evaporates again after the rain. In this manner a large quantity of water becomes converted into vapor. This aqueous vapor ascends into the atmosphere, there forming *clouds*. These do not remain st- tionary, but are driven hither and thither by the winds. The are sometimes white, sometimes black, sometimes grey. Whe the clouds have become saturated to a certain degree wi moisture, the latter forms into drops and falls as rain. If ve cold, the drops freeze and descend in the form of hail or sno

All of the rain which falls does not evaporate. Much of it soaks into the earth, falls into the clefts and fissures of rocks, and seeks an outlet for itself at the foot of hills and mountains. Such an outlet is called a *spring*.

From the springs the water flows onward in little brooks and streams. These streams do not flow in a straight line, but follow usually a winding course. As the streams flow onward they unite with other streams, and together they finally form rivers. Smaller rivers flowing into a large river are called its branches. The commencement of a river is called its source. The place where it empties its waters into another body of water is called its mouth. Which is higher, the source or the mouth of a river? The difference in height between the mouth and the source is called the *fall* of the river.

Where the fall is slight the water flows slowly; where great, rapidly. Where the water falls suddenly from a greater to a less height, it forms *falls*. The ear distinguishes falls by the rushing sound. Are rapids and falls favorable for navigation? For mill wheels? Sometimes the river becomes swollen, either from long rain storms or from the melting of ice on the shores or inland; the river then flows more quickly, and a river which at other times is safe then becomes dangerous to sail upon. When a river becomes so swollen as to overflow its banks, we call this overflow a *flood*.

A river upon which vessels can sail is called a *navigable* river. Rivers are usually navigable a part of their course only. We speak of a vessel *ascending* and *descending* a river. Which is easier? Why? We also speak of a *favorable* wind and an *unfavorable* wind; a *fair* wind and a *foul* wind. Describe to me what a fair wind would be. A foul wind.

We have spoken of the water of rivers and brooks as running water. But there are also bodies of water which are not called running water. These we name ponds, lakes and seas. S me are natural, some artificial. The greatest of all bodies o water which may not be called running water is the *ocean*.

There are also places where the water cannot be seen, but v ıere the earth is so saturated with it that it rises at every s ep we take upon it. These are called *swamps*.

Places in the Vicinity of San Francisco.—This may be an ex-

ercise connected with map drawing. First let a square be drawn representing the part of the city which is chiefly built upon. Fixing the location of the City Hall by a point, making the latter the center of a circle, draw its circumference, which shall represent a radius of two miles; then another representing a radius of three miles. Within these two circles locate places between two and three miles distant from the City Hall; afterwards add circle after circle, carefully indicating in each intermediate space the places to be noticed. Additional spaces should be drawn only when the pupils have already become so familiar with the nearer ones that they can readily sketch the circles and locations, noting the number of miles distant and comparing directions. Extend this exercise so as to include Yerba Buena, Alcatraz, Angel Island, Lone Mountain, Seal Rock, Farallones, Saucelito, Oakland, Alameda, San Leandro, etc.

Lines of Communication between San Francisco and Other Places.—As San Francisco is situated on a peninsula, nearly surrounded by deep water, it is natural that the communication with other places should be maintained more by water than by land. Hence, we find as yet but one railroad from the city, while there are many lines of steamers. The Southern Pacific Railroad has its depot in the city. The road extends southward from San Francisco, and in a southeasterly direction through San Mateo and Santa Clara counties. It connects San Francisco with San Mateo, Redwood City, Santa Clara, San Jose, Gilroy, and intermediate places.

The water communication is maintained by ferries, bay and river steamers, and ocean steamers.

By *ferries* we have communication with Oakland, and thus with the Central Pacific Railroad—with Alameda, San Quentin, Saucelito, Alcatraz, and Yerba Buena Island.

The *bay* and *river* steamers connect San Francisco with Benicia, Martinez, Vallejo, Petaluma, Sacramento, Stockton, and other places.

The lines of *ocean* steamers connect southward with Santa Cruz, Monterey, San Luis Obispo, Santa Barbara, San Pedro—which connects by railroad with Wilmington and Los Angeles, whence stages connect with all parts of Southern California and

Arizona—San Diego, Manzanillo, Acapulco, Panama, and other places.

Northward with Tomales, Crescent City, Umpqua River, Portland, Victoria, Sitka, etc.

Other lines connect with Honolulu, Australia, Japan, China and India.

ON THE GROWTH OF AMERICAN EDUCATION.

Judging by the experience of foreign countries, and by the rapid progress of our own, we may presume that it will not be long before we shall see some such development of our systems of education as this :

I. A very limited number of universities, certainly one, probably several, possibly many, in which all the studies of a university may be well pursued, to which young men will resort for the highest sort of scholastic training, and to which they should be refused admission, unless they have previously been well trained for a considerable period in the institutions of the next lower or collegiate grade.

II. A division of our colleges, doubtless hundreds in number, into two sorts : those of Letters, and those of Science. In the former, the training will be chiefly linguistic and historical, with a considerable amount of pure mathematics, and a general introduction to chemistry and geology, and perhaps other branches of natural science. In the latter, the instruction will be largely in the mathematics, and in the exact sciences of observation and experiment, while linguistic training, especially in the modern languages, and historical studies, will not be overlooked.

In the colleges of science of this grade professional or technical instruction will be likely to predominate over studies of a purely disciplinary character. In the college of letters the reverse is sure to be the case.

III. A double course in academies and high schools—the one eading, by the discipline of Greek and Latin, to a classical college ; and the other, by the discipline of the pure mathematics (algebra, geometry, and trigonometry), to the scientific colleges. Both of these courses will admit of modifications, ac-

cording to circumstances, for scholars who may not expect to go up to the higher colleges.

IV. Decided improvements in our elementary public schools, in which the eye, the hand, and the ear shall all be trained to help the intellect in acquiring and imparting knowledge; improvements which can be largely secured by teachiug the child to observe and investigate the phenomena of nature.—*President D. C. Gilman.*

HOW PLANTS PURIFY THE AIR.

Plants gain their nourishment by the absorption through their roots of certain substances from the soil, and by the decomposition, through their green portions, of a particular gas contained in the atmosphere—carbonic-acid gas. They decompose this gas into carbon, which they assimilate, and oxygen, which they reject. Now, this phenomenon, which is the vegetable's mode of respiration, can only be accomplished with the assistance of solar light.

Charles Bonnet, of Geneva, who began his career by experimenting on plants, and left this attractive subject to devote himself to philosophy, only in consequence of a serious affection of his sight, was the first to detect this joint work, about the middle of the eighteenth century. He remarked that vegetables grow vertically, and tend toward the sun, in whatever position the seed may have been planted in the earth. He proved the generality of the fact that, in dark places, plants always turn toward the point whence light comes. He discovered, too, that plants immersed in water release bubbles of gas under the influence of sunlight. In 1771, Priestley, in England, tried another experiment. He let a candle burn in a confined space till the light went out—that is, until the contained air grew unfit for combustion. Then he placed the green parts of a fresh plant in the enclosure, and at the end of ten days the air had become sufficiently purified to permit the relighting of the candle. Thus he proved that plants replace gas made impure by combustion with a combustable gas; but he also observed that at certain times the reverse phenomenon seems to result. Ten years later the Dutch physician Igenhousz succeeded in explaining this apparent contradiction. "I had but just begun experiments," says the skilled naturalist, "when a most interesting scene revealed itself to my eyes: I observed that not only do plants have the power of clearing impure air in six days or longer, as Priestley's experiments seem to point out, but that they discharge this important duty in a few hours, and in the most thorough way—that this singular operation is not due at all to vegetation, but to the effect of sunlight; that it does

not begin until the sun has been some time above the horizon; that it ceases entirely during the darkness of night; that plants shaded by high buildings, or by other plants, do not complete this function—that is, they do not purify the air, but that, on the contrary, they exhale an injurious atmosphere, and really shed poison into the air about us; that the production of pure air begins to diminish with the decline of day, and ceases completely at sunset; that all plants corrupt the surrounding air during the night, and that not all portions of the plant take part in the purification of the air, but only the leaves and green branches."—*Popular Science Monthly.*

EDUCATING GIRLS.

Educating girls for household duties ought to be considered as necessary as instruction in reading, writing and arithmetic, and quite as universal. We are in our houses more than half of our existence, and it is the household surroundings which affect most largely the happiness or misery of domestic life. If the wife knows how to "keep house," if she understands how to "set a table," if she has learned how things ought to be cooked, how beds should be made, how carpets should be swept, how furniture should be dusted, how clothes should be repaired, and turned and altered and renovated; if she knows how purchase can be made to the best advantage, the laying in of provisions, how to make them go farther and last longest; if she appreciates the importance of system, order, and tidiness, and the quiet management of the children and servants, then she knows how to make a little heaven of home—how to win her children from the street; how to keep her husband from the club-house, the gaming-table and the wine-cup. Such a family will be trained to social respectability, to business, and to efficiency and usefulness in whatever may be alloted to them.

It may be safe to say that not one girl in our large towns and cities enters into married life who has learned to bake a loaf of bread, to purchase a roast, to dust a painting, to sweep a carpet, or to cut, fit and make her own dress. How much the perfect knowledge of these bears upon the thrift, the comfort and health of families, may be conjectured, and not calculated by figures. It would be an immeasurable advantage to make a beginning by attaching to every girls' school in the nation, and have lessons given daily in the preparation of all the ordinary articles of food and drink for the table, and how to purchase in the market, to the best advantage, with the result of a large saving of money, an increase of comfort, and higher health in every family in the land.

COURSE OF STUDIES FOR THE PUBLIC SCHOOLS OF CALIFORNIA.

[Adopted by the State Board of Education, February 14th, 1873, and required to be enforced July 1st, 1873.]

COURSE OF STUDIES FOR THIRD GRADE.

FOURTH DIVISION.

Reading, taught from McGuffey's Primary Charts (or Willson's Charts, where they are already in the school), and from McGuffey's First Reader to page 32. Word method to be used exclusively, according to instructions given in Calkins' *Object Lessons*, page 288, *et seq.* From the very first the proper phrasing of sentences to be attended to, and correct modulations of the voice to be cultivated. Phonic elements of words to be derived by analysis; the letters representing those elements to be pointed out and learned, and finally combined into new words. Punctuation marks, inflection marks, as far as they occur in the reading lessons.

Spelling.—A few words to be first learned by the word method, then the letters composing those words to be pointed out and learned. Words spelled as learned; printing the words of lessons at dictation. The minimum requirement is the ability to spell orally, or print at dictation any word occurring in the reading lessons.

Printing letters and words as learned, on slate and blackboard (using a long pencil on the slate that the pupil may hold it in the manner of a pen.) Printing words at dictation.

Arithmetic.—Clear and ready perceptions of numbers from one to ten to be developed with use of objects, and at every successive step all possible additions, subtractions, multiplications, and divisions of integral numbers to be learned within each limit as it is reached.

Object Lessons.—First two weeks: *Form*, Calkins' *Object Lessons*, page 49 to 59. Second two weeks: *Color, ibid.*, page 112 to 118. Third two weeks: *Size and Weight, ibid.*, page 160 to 164, page 176 to 178. Fourth two weeks: *Sounds, ibid.*, page 183 to 188. Fifth two weeks: *Place, ibid.*, page 245 to 246. Review. The rest of the session or term, *Lessons on Human Body*, as given in the *Manual*, alternating with *Lessons on Objects*, Calkins' *Object Lessons*, page 298, *et seq.*, and Sheldon's *Lessons on Objects*, page 20 to 46. Parts, names, and number of parts.

Language.—The pupil to be required to answer and speak in complete sentences. Spontaneous expression of the pupil's thoughts to be encouraged. Systematic correction of common faults in the use of language to be commenced in this, and continued through all succeeding divisions.

THIRD DIVISION.

Reading.—McGuffey's Charts and First Reader completed. Continued drill upon the phonic elements of words; phonic spelling of all words used in the Reader. Silent letters, long and short vowels, their marking. Punctuation marks, and inflection marks, as they occur in reading lessons.

Spelling, oral, written, and phonic of all words occurring in the reading lessons. The minimum requirement is the ability to spell orally, or write at dictation any word occurring in the reading lessons.

Arithmetic.—Exercises, mental and written, in addition, subtraction, multiplication, and division of numbers from ten to twenty-five, in continuation of the work laid down for the preceding division. Clear and ready perceptions of numbers from ten to one hundred, to be developed with use of objects.

The child having obtained clear perceptions of the numeration of tens, the same work must be performed upon them, which, in the preceding division was performed upon units, but with this difference: that while tens are to be added to tens, or subtracted from tens, they are to be multiplied or divided by no number exceeding nine.

Writing, reading lessons on slate and blackboard. Minimum requirement to write at dictation any word or paragraph of reading lesson. Capitals and small letters.

Object Lessons.—First two weeks: *Form*, Calkins' *Object Lessons*, page 60 to 74, excepting lesson VI. Second two weeks: *Color*, *ibid.*, page 118 to 134. Third two weeks: *Size* and *Weight*, *ibid.*, page 165 to 173, 179 to 181. After this, lessons on objects, alternating with lessons on animals and plants, as prescribed in special instruction given in *Manual*. Names, position and uses of parts.

Composition.—At first merely imitative. Copying words and sentences printed on the blackboard by the teacher. Use of period at end of every sentence, and use of capital in first word of every sentence. The children are to be encouraged to write sentences of their own as soon as the number of words learned will permit. Just as soon as a few names of objects, a few words expressive of quality, and a few words of action are learned so that they can be read and written, let such objects be exhibited and such actions performed in the presence of the child as shall require, in description or narration, the use of the words learned. Great care must be taken not to make these exercises so difficult as to discourage the children. Spontaneous efforts, even the rudest, should be freely praised.

Geography.—Special local geography, as per instruction in *Manual*. Part of object lessons.

SECOND DIVISION.

Reading.—McGuffey's Second Reader begun and completed. Phonic exercises as given in Reader. Words and consonants; their markings. Punctuation marks finished. Abbreviations as they occur in reading lessons. Distinction between Roman letters and italics; words and syllables; prose and poetry.

Spelling.—All words occurring in reading lessons to be spelled by sound, and by letter orally and in writing. Minimum requirement to spell orally or write at dictation any word or paragraph of the reading lessons. The pupils should be able to spell and to write the names of the days of the week, and, as they occur, the months of the year.

Writing.—Reading lessons on slate and blackboard. *Elements* and *principles* of letters from Payson, Dunton & Scribner's Charts, or from instructions from the copy-book covers, or from P. D. & S.'s *Manual*.

Arithmetic.—Exercises in notation and numeration to 1,000. Exercises, mental and written, in addition, subtraction, multiplication and division of numbers within 100, the sum or product in no case to exceed 100. In addition, subtraction and multiplication, the units to be added, subtracted or multiplied first; then the tens; principles of carrying forward and borrowing illustrated. In division, the tens to be divided first, then the

units. Multiplier and divisor not to exceed nine. Same operations to be performed upon 100's as performed in preceding divisions upon units and tens. Ideas of vulgar fractions to be developed, notation of same to be taught to ninths. Same operations upon these fractions as upon the numbers from 1 to 10 in the Fourth Division of this grade. Roman numerals to C. Robinson's Progressive Primary Arithmetic to page 42, at option of teacher.

Object Lessons.—Lessons on harmony of colors, etc. See Willson's *Manual*, page 92, *et seq.*, and Calkins' *Object Lessons*, page 105 to 111. Lessons on *Form*, Calkins', page 74 to 93, and Lesson VI, page 66. Lessons on objects continued. Lessons on animals and plants, as per instruction in *Manual*. Description of parts.

Composition.—Writing sentences containing given words. Pupils to describe the pictures in their Reader, and to be encouraged to tell what they show. Short descriptions derived from these pictures and from object lessons. Accounts of things done. Every child in this division should be able to write his own name, the name of his teacher, and of the nearest postoffice. Systematic exercise in the use of *have*, *do*, *be*, *see*, and in correction of common faults in the use of the same. The work of the term or year should make the pupil acquainted with the use of the capitals for the pronoun I, and in the beginning of sentences, in the names of persons, days of the week, the month; also, the use of the period and the interrogation mark.

Geography.—Higher local geography as per instruction in *Manual*.

FIRST DIVISION.

Reading.—McGuffey's Third Reader begun and completed. Exercises as given in preceding division.

Spelling.—All words of reading lessons to be spelled by sound, and by letter orally and in writing. Particular attention paid to the writing at dictation of paragraphs of reading lessons.

Penmanship.—Reading lessons written on slate and blackboard. Numbers one and two, copy books, Payson, Dunton & Scribner's Series. Instructions on the copy book cover, and in Payson, Dunton & Scribner's *Manual*, to be followed strictly.

Arithmetic.—Numeration and notation to millions. Exercises in addition and subtraction. Multiplication and division of numbers to 1,000,000, multiplier and divisor not to exceed 9. Reduction of mixed numbers to improper fractions, and the contrary. Division of fractions having 1 for numerator by whole numbers (divisor not to exceed 9) illustrated objectively. Roman numerals finished. Robinson's Progressive Primary Arithmetic, finished, at option of teacher.

Object Lessons.—Lessons on animals and plants, as per instruction in *Manual*. Characters of families.

Composition.—Writing sentences containing words selected from the reading lessons. Descriptions derived from object lessons and pictures. Narration of actions performed by the teacher and by the pupils under the direction of the teachers. Punctuation marks as needed.

Geography.—Higher local geography, as per instruction in *Manual*.

COURSE OF STUDIES FOR SECOND GRADE.

SECOND DIVISION.

Reading.—McGuffey's Fourth Reader to page 126, inclusive. Phonic and elocu-

tionary exercises as given in Reader. The four principal feet of poetry—Iambus, Trochee, Anapest, and Dactyl—pointed out as they occur. Poetry to be scanned before being read.

Spelling.—From the reading lessons, as in preceding division; also spelling of all technical terms introduced in the several branches taught.

Penmanship.—Reading lessons written on slate. Numbers three and four copy books, Payson, Dunton & Scribner's Series. Instructions on copy book covers, and in P., D. & S.'s *Manual* to be followed strictly.

Arithmetic.—Numeration and notation of integers completed; numeration and notation of decimals so far as given in Robinson's *Rudiments of Arithmetic.* Long multiplication and division; reduction descending and ascending. Rudiments of Arithmetic, to page 166, leaving out *Fractions*, page 74 to 101. Colburn's Intellectual Arithmetic to section 6.

Object Lessons.—Lessons on animals and plants, as per instruction in *Manual.* Characters of orders.

Composition and Oral Grammar.—Writing sentences containing nouns, verbs and adjectives, and selecting the same from the Reader. Writing sentences predicating actions and qualities of given objects, selecting words from the Reader which denote action and quality. Predicating action in time past, present and future; introducing modifiers of the verb (adverbs) to tell where, how and when. The adverb.—Selecting words from the Reader which denote action present, past and future. Composition based on object lessons and geography lessons. Use of punctuation marks.

Geography.—Monteith's Manual to South America and California and Pacific Coast. Map drawing on slate, blackboard and paper. Local geography continued.

FIRST DIVISION.

Reading.—McGuffey's Fourth Reader completed. Phonic and elocutionary exercises as given in Reader.

Spelling.—From reading lessons, and spelling of all technical terms introduced in the course of instruction.

Penmanship.—Payson, Dunton & Scribner's No. 5. Instruction on copy-book cover and in P. D. & S.'s *Manual.*

Arithmetic.—Robinson's Rudiments completed, including the portion omitted in the preceding division. Colburn's Intellectual to section 11.

Object Lessons.—Classification of animals and plants. Instructions in *Manual.*

Composition.—Exercises in narration. Descriptive exercises to be commenced. Geography lessons and object lessons will furnish abundant material. Letter writing. Use of punctuation marks.

Grammar.—Oral deduction of rules for changing nouns from singular to plural. Distinction between the forms of the adjectives denoting different degrees of quality. Subject and predicate to be introduced. Selection from the Reader of the parts of speech already introduced. Personal pronouns, conjunctions and interjections. Synthetic exercises, embracing modifications of subject and predicate, to be introduced as rapidly as the progress of the class will permit. Person and gender of nouns and personal pronouns.

Geography.—Monteith's Manual completed. Map drawing and use of globe continued.

COURSE OF STUDIES FOR FIRST GRADE.

SECOND DIVISION.

Reading.—McGuffey's Fifth Reader to page 168, inclusive. Elocutionary exercises as given in Reader.

Spelling.—From reading lessons. Swinton's Word Analysis to page 52.

Penmanship.—Payson, Dunton & Scribner's No. 7.

Arithmetic.—Robinson's Progressive Practical to Percentage. Colburn's Intellectual.

Physiology.—Oral instruction as laid down in *Manual*.

Natural Philosophy.—Oral instruction as per *Manual*.

Composition.—Narrative and descriptive exercises extended. Letter writing from pupil to pupil, pupil to teacher, and pupil to parents and absent relatives on the business and lessons of the school. Manner of addressing letters.

Grammar.—Synthetic exercises; the subject modified by words and phrases. The predicate modified by the same. The adjective and adverbial element to be modified. The verb—transitive and intransitive. The objective element. Introduction of case. Regular and irregular verbs. The clause to be introduced. Selections from the Reader of all the parts of speech. Verb—active, passive and neuter. Tense. Analysis of simple sentences. The subject a word, phrase and clause; the predicate a noun, an adjective, a verb. Use of Brown's First Lines of English Grammar, to page 74, at option of teacher.

Geography.—Monteith's Physical and Intermediate. Map drawing. Specimen maps monthly.

History of United States.—Swinton's Condensed, to Revolutionary War. Short Lessons on the Constitution of the United States.

FIRST DIVISION.

Reading.—McGuffey's Fifth Reader completed. Elocutionary exercises as given in Reader.

Spelling.—Spelling from reading lessons as in preceding divisions. Swinton's Word Analysis finished.

Penmanship.—Replaced by Hanaford and Payson's Bookkeeping by Single Entry.

Arithmetic.—Robinson's Progressive Practical and Colburn's Intellectual completed and reviewed.

Physiology.—Oral, or at option of teacher, Cutter's First Book begun and completed.

Natural Philosophy.—Oral, or at option of teacher, Hotze's First Lesson in Physics.

Composition.—Narrative and descriptive exercises extended. Business letters may take the place of other letters.

Grammar.—Brown's First Lines completed.

Geography.—Monteith's Physical and Intermediate reviewed and completed. Map drawing. Specimen maps monthly.

History of the United States.—Swinton's Condensed completed. Constitution of the United States and of California.

COURSE OF STUDIES FOR THE ADVANCED GRADE.

THIRD DIVISION.

Reading.—McGuffey's Sixth or High School Reader begun.
Arithmetic.—Robinson's Higher completed.
Algebra.—Robinson's New Elementary begun.
Geometry.—Robinson's Separate begun.
History.—Worcester's General begun.
English Composition.—Bonnell's begun.
Physiology.—Cutter's Larger begun.
English Grammar.—Brown's Institutes begun.
Natural Philosophy.—Quackenbos' begun.
Botany.—Gray's Manual begun.
Rhetoric.—Boyd's begun.
Bookkeeping.—Hanaford & Payson's Single Entry finished. Double Entry begun.

SECOND DIVISION.

Reading.—McGuffey's Sixth or High School Reader completed.
Algebra.—Robinson's New Elementary completed.
Geometry.—Robinson's Separate completed.
History.—Worcester's General completed.
English Composition.—Bonnell's completed.
Rhetoric.—Boyd's completed.
English Literature.—Collier's begun.
Botany.—Gray's Manual completed.
Bookkeeping.—Hanaford & Payson's Double Entry completed.
Chemistry.—Steele's begun.
Mineralogy.—Comstock's begun.
Astronomy.—Loomis' begun.
Latin and Greek.—(Optional) begun.

FIRST DIVISION.

English Literature.—Collier's completed.
Mental Philosophy.—Upham's begun and completed.
Chemistry.—Steele's completed.
Mineralogy.—Comstock's completed.
Astronomy.—Loomis' completed.
Surveying.—Robinson's begun and completed.
Plane Trigonometry.—Robinson's begun and completed.
Natural History.—Tenney's begun and completed.
Latin and Greek.—(Optional) continued.

To the above Course of Studies are to be added for the different divisions of the several grades, *Drawing, Music, Calisthenics* and *Morals* and *Manners*. The course for *Music* and *Drawing* is not yet completed. The course in drawing will be based upon "Industrial Drawing for Beginners; Free Hand"—published lately by James

R. Osgood & Co. The course in music will be based upon Mason's Manual. *Calisthenics* and *Morals* and *Manners* are to form, as much as possible, simultaneous exercises for the whole school. As will be seen from the proceedings of the State Board of Education, a committee was appointed to prepare a *Manual* to accompany the Course of Studies. In this *Manual* all necessary instructions will be given to teach the several branches called for by the course. It will be several months before the *Manual* can be printed. At the proper time County Superintendents will receive a full supply of copies of the *Manual*, so that every teacher may receive one of them. Teachers must look to County Superintendents, and not to us, for their copies.

DEPARTMENT OF PUBLIC INSTRUCTION.

OFFICE OF CONTROLLER OF STATE,
SACRAMENTO, Cal., March 1st, 1873.

Hon. H. N. BOLANDER, *Superintendent of Public Instruction:*

SIR: In accordance with an Act of the Legislature, I have the honor to report as follows: The securities belonging to the School Fund held in trust by the State Treasurer, consist of bonds of the State of California, bearing interest at the rate of seven per cent. per annum, and amount to one million two hundred and three thousand five hundred dollars ($1,203,500). The statement showing the moneys in the State Treasury, subject to apportionment and the sources from which the same were derived, is as follows:

Derived from poll taxes	$74 21
Interest on School lands	39,950 72
Interest on bonds held in trust	42,122 50
Property tax (four cents eight mills on each one hundred dollars)	208,773 07
Subject to apportionment	$290,920 50

Very respectfully, JAMES J. GREEN, Controller.

APPORTIONMENT.

Total number of census children between five and fifteen years of age entitled to receive school money, 137,351; amount per child, $2 11.

Alameda County, total, 6,496; amount, $13,706 56. Alpine, total, 103; amount, $217 33. Amador, total, 2,097; amount, $4,424 67. Butte, total, 2,623; amount, $5,534 53. Calaveras, total, 2,252; amount, $4,751 72. Colusa, total, 1,633; amount, $3,445 63. Contra Costa, total, 2,488; amount, $5,249 68. Del Norte, total, 315; amount, $664 65. El Dorado, total, 2,395; amount, $5,053 45. Fresno, total, 925; amount, $1,951 75. Humboldt, total, 1,939; amount, $4,091 29. Inyo, total, 259; amount, $546 49. Kern, total, 459; amount, $968 49. Klamath, total, 258; amount, $544 38. Lake, total, 1,000; amount, $2,110. Lassen, total, 440; amount, $928 40. Los Angeles, total, 6,173; amount, $13,025 03. Marin, total, 1,502; amount, $3,169 22. Mariposa, total, 875; amount, $1,846 25. Mendocino, total, 2,470; amount, $5,211 70. Merced, total, 908; amount, $1,915 88. Mono, total, 87; amount, $183 57. Monterey, total, 3,449; amount, $7,277 39. Napa, total, 2,068; amount, $4,363 48. Nevada, total, 4,179; amount, $8,817 69. Placer,

total, 2,229; amount, $4,703 19. Plumas, total, 700; amount, $1,477. Sacramento, total, 5,622; amount, $11,862 42. San Bernardino, total, 1,583; amount, $3,340 13. San Diego, total, 1,407; amount, $2,968 77. San Francisco, total, 31,936; amount, $67,384 96. San Joaquin, total, 4,879; amount, $10,294 69. San Luis Obispo, total, 1,404; amount, $2,962 44. San Mateo, total, 1,908; amount, $4,025 88. Santa Barbara, total, 2,301; amount, $4,855 11. Santa Clara, total, 6,436; amount, $13,579 96. Santa Cruz, total, 2,696; amount, $5,688 56. Shasta, total, 1,277; amount, $2,694 47. Sierra, total, 1,009; amount, $2,128 99. Siskiyou, total, 2,250; amount, $4,747 50. Solano, total, 3,778; amount, $7,971 58. Sonoma, total, 6,127; amount, $12,927 97. Stanislaus, total, 1,508; amount, $3,181 88. Sutter, total, 1,313; amount, $2,770 43. Tehama, total, 1,148; amount, $2,422 28. Trinity, total, 508; amount, $1,071 88. Tulare, total, 1,514; amount, $3,194 54. Tuolumne, total, 1,912; amount, $4,034 32. Yolo, total, 2,101; amount, $4,433 11. Yuba, total, 2,412; amount, $5,089 32.

HENRY N. BOLANDER,
Superintendent of Public Instruction.

THE STATE BOARD OF EDUCATION

Met at the office of the Superintendent of Public Instruction, February 17th, 1873, at 8 o'clock, P. M.

Present—Dr. Lucky, Messrs. Leadbetter, Lynch, Jackman, Baker, and Bolander.

Absent—Governor Booth, Messrs. Jones and Widber.

In the absence of Governor Booth, Superintendent Bolander called the meeting to order, and moved that Mr. Baker take the chair. Adopted.

The minutes of the meeting of December 13th, 1872, were read and approved.

On recommendation of the State Board of Examination, life diplomas were granted to the following persons:

W. J. Gorman, of San Francisco;
A. Herbot, San Francisco;
J. A. Hudson, of Santa Clara County;
W. C. Hunt, of Santa Clara County;
Miss A. H. Hill, San Francisco;
Miss A. A. Rowe, San Francisco;
C. H. Crowell, of Santa Clara County;
John A. Chesnutwood, of Mariposa Co.

On motion, the life diploma granted at the last meeting to Freeman Gates, since deceased, was directed to be sent to his widow.

On motion of Dr. Lucky, Mr. Jackman was added to the Committee on the Revision of the Course of Studies.

Superintendent Bolander, from the Committee on the Revision of the Course of Studies, presented a report which was received and read. The course was taken up in detail and debated at length. The final consideration was postponed till the evening session.

C. T. Hopkins, at his own request, appeared before the Board and presented for their opinion his "Manual of American Ideas." He argued for its introduction into the public schools of California, and read liberally from the work, and from recommendations of prominent educators and others to show its importance. Without taking any action, the Board at 5:30 P. M. adjourned to meet at half-past 7 o'clock.

EVENING SESSION.

Meeting called to order by the Chairman, Mr. Baker, at 7:30 P. M.

Further consideration of the revised Course of Studies, submitted by the Committee, was resumed, the course discussed in detail and accepted.

On motion of Mr. Jackman, it was ordered that the new course of studies must be introduced into the public schools of California on or before the first day of July, 1873.

On motion of Mr. Bolander, it was resolved that all the books, maps, charts, and apparatus to be used in the course of studies be added to the list of library books, and that the Trustees of each school district be requested to purchase a complete set of the same for the library and for the use of teachers.

On motion of Superintendent Bolander, the Committee on the Revision of the Course of Studies were instructed to prepare a manual to accompany the course of studies, and the State Superintendent was authorized to have the same printed when prepared.

On motion of Dr. Lucky, the Secretary was requested to give, in the future, at least two weeks' notice of proposed meetings of the Board.

On motion of Mr. Jackman, it was resolved that the Third Grade shall hereafter be divided into four divisions, and the Second and First Grades each into two divisions.

On motion of Superintendent Bolander, it was determined that those schools be of the Third Grade in which studies of the third grade are taught exclusively; those to be of the Second Grade in which no studies higher than those of the second grade are taught; those to be of the First Grade in which studies of the first grade are taught—pupils to be promoted on a percentage of seventy, obtained on examination by the County Superintendent.

On motion, at 12:55 the Board adjourned.

HENRY N. BOLANDER, Secretary.

STATE NORMAL SCHOOL.

THE next Session will commence on Wednesday, the 18th of June.

REPORT FOR FEBRUARY.—Senior Class, 23; Junior Class, 91; Total, 114. Children in attendance in training class, 42.

CALENDAR FOR 1873-'74.—First Term begins Wednesday, June 18th, 1873. First Term ends Thursday, October 23d, 1873. Fall vacation, one week. Second Term begins Wednesday, November 5th, 1873. Second Term closes Thursday, March 26th, 1874.

EDUCATIONAL TOUR.—The Principal of the Normal School expects to spend most of his next vacation in the southern counties of the State. He will visit the following counties at the times named, viz: San Diego, April 9th; Los Angeles, April 16th; San Bernardino, April 23d; Santa Barbara, April 30th; San Luis Obispo, May 7th; Tulare, May 13th. A week will be given to each county. The Superintendents will decide when and where he is to lecture,

EDITORS' TABLE.

IMPORTANT DECISION.—The Supreme Court of New York has decided that the Fourteenth Amendment of the Constitution of the United States does not prohibit boards of education from establishing separate schools for colored youths, inasmuch as this abridges no privilege of a citizen, since no citizen has the privilege of choosing the school in the city to which he will send his children. The Court adds:

"The relator has equal common school advantages with other citizens. He does not assert that the school which is open to him is not as good as the one which is closed. He does not pretend that there is anything in its position, its pupils, or its teachers, which makes the limitation of his children to that school a practical refusal to them of common school advantages. If the school which is open to his children were materially objectionable, or if it were an improper school for them to attend, a very different question might then arise."

This decision is substantially the same as the one given by the Supreme Court of Ohio a few months since. Both agree that the equality of right guaranteed by the Fourteenth Amendment does not imply that white and colored youth shall attend the same schools any more than it necessitates the attendance of the two sexes at the same schools—a view held by us from the first. What the amendment plainly guarantees is, that the two races shall be provided with *equal* public school advantages, and it is to be regretted that neither of these decisions unequivocally denies the right of school boards to maintain *inferior* schools for colored youth—an injustice much too common even in Ohio and New York. It is true that both decisions *imply* that the school advantages furnished must be equal; but something more than this is needed to correct the wrong.—*Ohio Educational Monthly.*

B. G. NORTHROP, President, gives notice that the Thirteenth Annual Meeting of the National Educational Association will be held in Elmira, New York, on the 5th, 6th, and 7th days of August, 1873. Free return tickets are already promised on the New York & Erie and other railroads centering in Elmira. A cordial invitation to hold the meeting in that city has been received, signed by the Mayor and Aldermen, and sixty-five prominent citizens, including judges, editors, presidents of banks, clergymen, lawyers, and the officers of Elmira College. A warmer welcome was never promised to the Association. No effort will be spared to render this meeting interesting and profitable. A large attendance is anticipated. Details as to hotel and railroad facilities, topics and lectures, will be seasonably given.

NEW EDITOR.—We are pleased to notice that B. F. Tweed, Superintendent of the Charlestown Schools, has taken editorial charge of the *Massachusetts Teacher*. Mr. Tweed is an able educator, and a right jolly fellow, as General Eaton, General Oliver, and a company of pedagogues that went "a fishing" near the "city of witches" last Summer can testify. May his friends never grow fewer nor his smiles grimmer.

NEW YORK has *eight* State Normal Schools in full blast; Massachusetts, four. There are 1,000 embryo teachers in the New York City Normal College for young ladies.

AN ABLE REPORT.—The last Biennial Report of Newton Bateman, State Superintendent of Illinois, is one of the ablest reports ever published in the United States. Superintendent Bateman discusses interesting points concerning the new school law of Illinois, and treats of the defects in common school instruction with the hand of a

master. The report embodies the very able address of Mr. Bateman on *Compulsory Education*, read before the National Association at Boston. We have marked some extracts for future use.

PERSONALS.—C. H. Kimball, formerly of Nevada County, has been elected Principal of the Los Angeles Grammar School. He is an earnest and a capable teacher..... Professor A. G. Brown, recently from Kentucky, has been elected Principal of the Los Angeles High School, and also City Superintendent of Schools. Mr. Brown is an experienced educator, an able writer, a fluent speaker and a progressive man..... George Brown, formerly of Hornitos, and recently Principal of the Alvarado Grammar School, is now engaged in the San Francisco schools. Mr. Brown is a thorough teacher. His hard-headed Scotch sense and his finished education give him a rare combination of qualities that go to make up a true teacher.....Professor Schultz, recently from Pennsylvania, has taken a school near Rio Vista.....He adds one to the first class teachers in the State.....Joseph Leggett has been appointed *examining teacher* in San Francisco.....John Bagnall, County Superintendent of Alpine County, is teaching an evening class and a day class in the public schools of San Francisco. Mr. Bagnall's evening class is a model one, and his day class is pleasant to visit. His old friends in the State will be glad to learn that his earnestness and enthusiasm in teaching are fully recognized. He looks ten years younger than he did when he was migrating from one country district to another. .....Mr. Lighthall is paid by the Trustees of Orchard Street District $125 a month. The school is small, but the Trustees have good sense and don't believe in *cheap* teachers.....B. J. Watson has gone back to the Forest Springs District in Nevada County. The Trustees pay him and his wife $200 a month for teaching their school. Such extravagance would break the hearts of some people we know of.....Colonel McKowan, Vice Principal of the Union School, San Francisco, has resigned for the purpose of going to Europe. He is a gentleman of high culture, genial and pleasant, and we hope his shadow may never grow less. William White, form erly of Watsonville, takes his place.....Professor George Tait, formerly of the Brayton College School, intends to take a trip with his family to the East and to Europe. .....Professor Templeton, formerly Principal of the Sacramento High School, is located at Woodland.....A. H. McDonald has made the Sacramento evening schools a success. There are now four well filled classes.....Mr. Dwyer has been elected teacher of the Ocean House School, San Francisco.....James Robertson has been appointed Principal of the Industrial School. He is just the man for the place. The school is in excellent condition. Salary paid $2,400 a year, in addition to board ann washing. The Supervisors are tired of cheap teachers.....H. C. Kinne, well known in the interior, not liking the practice of law, has returned to his first love. Mr. Kinne manages what is called a "reform class" in the Lincoln Building. It is a class made up of hard-headed boys who make trouble for lady assist ants in the various classes throughout the city. Mr. Kinne makes it a *model* class, and we are sure that teachers visiting our city schools will learn something by dropping in to see the "model class."..... Mrs. Benton is making a revolution in the way of drawing in the primary classes. Their progress is really remarkable. Reason—the application of common sense and enthusiasm to the work..... Superintendent Campbell, of Oakland, has had his salary raised to $2,500 a year. On the strength of this liberality, Mr. Campbell proposes to give a thorough oral examination to every class in the city.

[From the New York State Educational Journal for February, 1873.]

UNABRIDGED.

BY CHARLES T. POOLER.

Oft, as listless you've sat humming o'er the keys of mem'ry thrumming
Out unbidden notes of music from the slumb'ring melodies of yore,
Some trilling, thrilling note departed, the linking joys hath sudden parted,
Till, by murm'ring o'er the others, at the warbling of its brothers,
Back the truant cometh, singing softly, sweetly, as in years before,
To leave you, nevermore.

But ah! when a WORD has wandered, "*divine afflatus*" all been squandered,
On the kindred meanings pondered, through your treach'rous mem'ry's stock and store,
Spite your rhyming and your chiming, words and meanings shift and shuffle,
Till your choler wears the ruffle, and the flashing thoughts, Promethean,
Hiss upon the waters Lethean;—dazed with doubt you pace the floor,
As thousands have before.

Then your "eyes had all the seeming of a demon's that is dreaming,"—
Vacant, flaring, glaring, gleaming, stark and staring at the unseen floor;
Crazed with dance of unpoetic fancies, catching only synonymic glances,
As the wizard, wordless wantons hide-and-seek like Jack-o'-lanterns;
Now revolving, now dissolving into phantom oaths you never swore,
Only felt them, nothing more.

Felt the flames of fierce affliction as you prayed, "O for a Diction-
Ary balm from ancient Gilead for a treach'rous mem'ry's Illiad
Of woes!" And your prayer was granted, by word-horror now no longer haunted,
No more demon eyes are glaring, no more phantom oaths are swearing;
Leaves from Gilead brought by Noah, WEBSTER'S UNABRIDGED in stock and store,
On your table, evermore.

Thoughts and words from all their sources, sparkling through their classic courses,
Flashing up from new resources; Arab, Roman, Hebrew, Celt and Moor,
German, Goth and Greek, Teutonic, Saxon, Vandal and Sclavonic,
All nations, tongues and learnings, human souls in all their yearnings,
Through ages dark and ages golden, have been made to faithful pour
Into this their treasured lore.

Science, through each nomenclature, arts of every name and nature,
Their pictured symbols here explore; and will ever bless the modern Noah
For the saving ark he builded, for the language he hath gilded
With such purity and beauty, that with stern, resistless duty,
Carping critics, flaunting, ranting, still must follow with their Babel lore;
Ever follow in the wake of Noah, only *follow*, nothing more.

Deansville, N. Y., January 18, 1873.

CALIFORNIA
STATE NORMAL SCHOOL.

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   a. Reading (Vocal Culture). *b*. Grammar. *c*. Word Analysis. *d*. Composition. *e*. Rhetoric.
2. MATHEMATICS.
   a. Arithmetic (Mental and Written). *b*. Algebra. *c*. Geometry. *d*. Trigonometry. *e*. Mensuration.
3. GEOGRAPHY.
   a. Political. *b*. Mathematical. *c*. Physical (Meteorology).
4. HISTORY.
   a. History of United States; Constitution of State and U. S. *b*. General History.
5. NATURAL SCIENCES.
   I. Natural History. *a*. Botany. *b*. Zoology. *c*. Physiology. *d*. Mineralogy and Geology. II. Philosophy. III. Chemistry. IV. Astronomy.
6. PENMANSHIP.
7. DRAWING.
8. BOOKKEEPING.
9. PEDAGOGY.
   a. Mental Philosophy. *b*. Didactics.
10. MUSIC.
11. CALISTHENICS.

THE

CALIFORNIA TEACHER.

MAY, 1873.

VOL. X. SACRAMENTO. No. 11.

[*For the California Teacher.*]

A SCHOOLMASTER'S DAY—SUNDAY.

If this were Saturday, the last day of the seven, the day of rest, it would be the time for turning off from the dusty road, and stretching one's tired bones on the grass, without a thought of work; unless it might be some languid looking backward through the week, some useless self-reproach or gratulation, or a sigh of relief that another week's duties were left behind. But this is Sunday, the sunrise-day, the first of the seven, the morning of the new week. It is a day for forgetting the things which are behind, and for climbing up to some higher ground to survey the pathway ahead. It is the time to get such a bird's-eye view of one's surroundings, that some plan of the best route can be made.

Not that I would waste such a precious interval of tranquil outlook in planning the details of my journey. Under the pressure of the present necessity, when the actual moment comes, that can be better done. To arrange beforehand just how this or that difficulty is to be met, to decide whether it will be best to follow the bed of the stream or take the chapperal, would be useless. The general direction is what I need to see. Yonder the trail should wind; through that shadowy cañon; round the foot of the cliff; over that brightening hill.

Once a week, at least, a teacher must leave the small details below him, to stand on the heights and survey his work in the large. Otherwise, however conscientious and scrupulous he

may be in the machinery of the school, he makes enormous blunders in the general plan. How often do we weary our scholars and ourselves in struggling to work them through thick places where we never ought to have been, as a half hour's cool planning at the outset would have shown. Nor is that the worst of it: for the want of that preliminary view, a hundred treasures were left untouched that lie directly in our proper way.

What, then, do I want to accomplish in school? That question I must keep before me constantly, and have ready a very definite answer to it. How can one take any wise means unless the desired end is clearly seen? It would be well if at every recitation some sudden visitor would put his head in to enquire: "Exactly what are you trying to do at this particular minute, and why?"

We call ourselves teachers. There is a lower and a higher office implied in the word. The lower one consists in causing children to know certain things before unknown. The higher one consists in having their faculties develop themselves. (Some vague misunderstanding of this latter shows itself in the flattering vulgarism of the patent blackboard men who are fond of addressing us as "educators.") Two branches, then, my object includes—first, to have the children know; second, to have them be and do.

As to the former—the lower office—what things am I to help them know? Are there only a few subjects on which they are to be informed, or is it for me to teach them, so far as I can, everything that is known on earth? Obviously the latter would be desirable, but the only hope for short lived mortals, in a world where so many things are known, is to take the objects of knowledge in order, and just in their proper order.

Then I am to teach my scholars of such and such a grade only a limited set of things? Not so very limited. Doubtless I am not to dip here and there, giving a smattering taste of a thousand subjects, while neglecting the orderly laying of solid foundations. The digestion is not to be stimulated by all sorts of things before it has been strengthened by just the right things. Nevertheless a vast field lies in my immediate province. By judicious selection, by daring to omit a mass of useless rubbish, they may have time to be informed on very many important subjects. I am not to rest or to let them

rest satisfied so long as they are ignorant of any important thing which, at their stage of development, they ought to know. More than that, they must now and then have swift glimpses, sudden and tempting, of all which they ought to want to know.

Three things, then, I must give the boys and girls as their knowledge-teacher—first, freedom from learning a distressing amount of rubbish; second, a vast number of important truths; third, a hunger and thirst for more.

Secondly, in teaching them to do and be (we do, only by virtue of what we are; we are, only by virtue of what we do), that is, as their wisdom-teacher, just what am I trying to accomplish?

Are the children to be trained in a few directions only, or am I aiming to have them develop all their faculties? If the former, which direction? Shall the boys be trained into money-makers, name-makers, inventors, office-getters, or what? Shall the girls grow into artists, lecturers, kinder gardeners, poets, parlor-ornaments, or kitchen-maids? Which faculty shall be sharpened most, and what stone is the best to sharpen it on?

Is it not rather in having all their faculties go on growing together, each to that best possibility which can only come from harmony with all the rest, that my duty lies?

Just here I find myself knocking at the door where many have knocked but none been answered: What is the end of existence, the *summum bonum?* Tell me what we live for, and I shall know how we are to be trained.

But is it really necessary to answer this in order to teach my history class to-morrow morning? No, thank Heaven, else we were all adrift on a bottomless sea. In the very question lies its answer, so far as my duty is concerned. If this—"how shall we live and for what?"—is the great question, then the training which best fits one to answer it, by perfect thinking as the only revelation of perfect living, is the training which my boys and girls must have. For the life they were meant to live, they must first get the use of all the faculties they were meant to have.

Not money, then, not marriage, they shall be trained to get. In all fulness of every power, body and soul, they shall learn to be themselves.

What, then, are these human faculties for whose development I am responsible? No vague general answer will here help me. Let me take the body for illustration. It acts through definite bones, muscles, nerves, that lie just so and so, each with precisely this or that function, and precisely its own conditions of development. If my work in their physical training is to be anything but a ghastly sham, these functions and conditions I must exactly understand. 'Tis of no use to say to Arthur, who sits on his shoulder-blades, "be thou strong." I must set for him just that exercise which shall bring out the *multifidus* and the *erector spinæ*. 'Tis useless to tell Lizzie, who mumbles her words, to speak more distinctly. I must have her practice exactly those subvocals in which she fails. If Mattie's flaccid third finger drops here and there a note at the piano, it is for me to manage to have that divided tendon get its compensatory drill. If Harry slinks along the street, sagging at the knees, it is my business to know how much of the fault lies in the *rectus femoris*, and what proportion of foot-ball and independence will set it right.

It is a startling thought that this is just as true of the invisible sinews of the mind. It is startling when we think how many of us are pretending to train the minds of children, without the faintest conception of their separate faculties, or their modes of operation. It is as if a man should set up for a gardener without knowing the functions of roots, or buds, or seeds. It is as though some lunatic should offer to take charge of a great steamer's machinery without understanding the uses of a single lever or wheel, or without even a suspicion of their existence. It is as if for a jest some boy should stand at the leader's desk and attempt to direct a full orchestra without knowing one of all the separate instruments.

First of all, then, before venturing to go to my classes again, let me try to get before my mind some outline of the spiritual powers, whose culture and direction is committed to my hands. I see them, as I try to analyse the actions of the soul, in three groups—the intellect, with its thoughts; the sensibility with its feelings; the will, with its choices and commands.

By three faculties, or in three modes, the intellect acts—the observing power (whether perceiving one's self, in consciousness, or in perceiving through the senses); the creating power

(either in remembering or imagining); and the thinking power (in comparing, distinguishing, generalizing, classifying, judging, reasoning, inferring).

In three ways, as it happens, too, the sensibility is alive—in emotions (as joy, grief); in affections (as loving, hating); and in desires (as of pleasure, fame, friends, money, goodness, wisdom).

In two ways, finally, the mind becomes a will—in conscious choice (either weakly or strongly preferring); and in volition (in feeble or vigorous command).

These, then, are the principal faculties, or modes of action, of the minds with which I have to deal. Without thoroughly understanding them, how absurd, how shameful, to attempt to instruct or train these minds. To help me keep them all constantly in view, I will set them together in a tabular form, and this table I will keep on my desk. So shall I make sure that no instrument in any corner of the orchestra jars with the rest in discord, or drops into neglected silence.

In my diary for the remainder of the week, I will note what ways I find to make the ordinary routine of school bear on each of these:

Intellect:	Observing:	Perception of self, Perception through senses.
	Retaining and Creating:	Memory, Recollection, Imagination.
	Thinking:	Comparing, Distinguishing, Generalizing, Classifying, Judging, Inferring, Reasoning, etc.
Sensibility:	Emotions:	Joy, hope, awe, wonder, Grief, shame, fear, etc.
	Affections:	Love, pity, liking, and reverence, Hate, blame, dislike, contempt, etc.
	Desires:	Of pleasure, fame, approbation, Of goodness, wisdom, power, etc.
Will:	Choice, Command.	

Here, then, is my work plainly before me. Each of these

faculties separately, all of them in just balance, are to be given free play to gain full power. To understand all these is my first business. I will learn all I can of them in books on mental science, and in my note-book shall be written all that I can observe each day with regard to their development among the children.

In all that I have written to-day, I know that I have only sketched out the rough outlines of the subject. I have not touched upon those imperious laws of mind: the association of ideas, inherited tendencies, automatism or acquired dexterities, temperaments, etc. Nor have I spoken of traits of character, veracity, curiosity, enthusiasm, energy, sensitiveness, etc.; nor of mental habits, reverie, credulity, skepticism, etc.; nor of those wonderful inner senses of honor, right, justice (conscience), of the sublime, the beautiful (taste), of humor, of ridicule, etc. All these, too, I must watch for, must study, must regulate.

So, after years of patient and unremitting investigation, it may be that I shall be able to have some little part in that great work of which the name "teacher" is, as yet, only the far-off prophesy. E. R. S.

[*For the California Teacher.*]

FUNDAMENTAL PRINCIPLES OF TEACHING LANGUAGE.

TRANSLATED FROM THE GERMAN, BY MRS. LANE.

1. *Pupils are to be prevented from writing a language either prematurely or unaided.—a.* In teaching language in our schools, one of the main points to which attention is directed, is *orthography.* It is greatly to be regretted that so much time and labor is spent upon this branch of instruction. It has long been my firm conviction that one chief cause of the great struggle which extends through the whole school-course, lies in the practice of allowing the pupil to begin to write a language independent of aid and at too early a period. The scholar is allowed to write by himself, even when it can by no means be presumed that the picture of the word, in its separate parts, stands before his mind's eye. Error upon error is the natural

result of this. Moreover, let the teacher allow much to be written without exact correction, and the pupil's eye is soon rendered incorrect by familiarity with his own errors. It becomes extremely difficult to create a correct picture of the word, and the injury done to orthography by such premature and unaided writing, is far greater than the benefit in other respects, which has been attributed to this practice.

In order to render the pupil sure in his orthography, the application of the principle rules of orthography is by no means to be neglected, but the weightiest influence will be found to be derived from the eye. But before the eye becomes fitted to perform this service, years of practice are necessary in training it to view with accuracy and to perceive words accordiug to their written form, (Orthography cannot be learned by exercises in dictation, but only by accurate comprehension of what is correctly spoken and written. [Ear and eye.] To look sharp and hear aright, therein lies the whole secret of orthography. The former belongs to the province of instruction in writing or copying, the latter to instruction in speaking.)

This can in no way be better done than by copying much, which copying must be subjected to the strictest criticism. The selecting, according to some orthographic point of view, of words from the reading-book and the writing of them down, is also most urgently to be recommended. By such a method, even if only one page a week be copied, or one exercise in the direction recommended be prepared, the scholars, on their entrance into the higher classes, will be found to have reached the summit of the mountain of orthography. This is a gain which the advanced classes cannot highly enough value. They have gained time, and in many things a road is broken for them, which they would otherwise be forced to avoid.

b. As in view of orthography, so must I, from other points of view also, pronounce against the premature introduction of unaided written exercises for the pupil, and in favor of the careful copying of simple and well-selected pieces from the reading-book. The written language is, for the scholar, something different from the language of ordinary conversation, and even in this latter he is not perfectly accomplished. How then is the child to be expected to put his thoughts on paper in written

language before the genius of the language has, to a certain degree, ripened within him, before he has acquired a knowledge of the most important rules of grammar? The child must necessarily commit errors in style, and the worst of it is, he has no idea that what he has written can be faulty. He is capable neither of *understanding* nor of *feeling* his errors. Thus his very exercises in expressing his thoughts in language become the means of corrupting, of preventing, his sense of the genius of the language, its spirit, its feeling.

Above all things else the genius of the language studied is to be cultivated; this, it is easy to see is not attained by the literary efforts of the scholar, but by choice selections for reading. Therefore, in order to cultivate in the learner the genius, the spirit of the language, I am most thoroughly in favor of assiduous and frequent contemplation, perusal, discussion, copying, and commiting to memory of good selections, and as thoroughly opposed to premature, unaided writing of the language studied. Whoever confines himself in the lower classes to this, will, in the higher classes, have reason to rejoice at the result. But let us ask what is the aim of early, unaided, written exercises? In orthography and manner of expressing one's self surely nothing is gained, but much may be corrupted. Is it for the purpose of forcing children to think? Let us not forget that the effort of the child to think for himself and by himself, is often not worth a penny; and, at the most, exercises of this kind are merely a mechanical effort, the occasion for the exercise of the memory. The teacher who thinks, will, in his teachings in the school-room, sufficiently incite thought in his pupil.

2. *Instruction in language is to be associated with selections for reading.—a.* The aim of instruction in language is not to add to the knowledge (historical, geographical, or other) of the pupil; just as little has it for aim to exercise the power of thought. Certainly instruction in language will be, should be, and must be an exercise of the thinking powers, but this is not its *aim*. Such instruction is rather mutual action, reciprocal effect of thought and speech. For this reason the so-called "exercises in thinking" (Denkuebungen) can be advantageously combined with the teaching of language, and vice versa; at least they may mutually aid each other.

The aim of instruction in language is this:

First—To make the language of literature, or, what should be the same thing, of cultivated people, intelligible to the pupil.

Second—To render the pupil capable of expressing himself in the language studied.

Without the first, the second is not possible; let the first be attained, and the second comes of itself.

If the real purpose of instruction in a language is expressed in the above words, then the first and indispensable means thereto is the speaking in a cultivated style to the pupils, and the reading to them of select literature from books. Such means will effect more than all other means together.

But that this method should have its full influence, instruction in language has, for its task, to guide the learner and to accustom him not merely to the intelligent comprehension of *thoughts* spoken, written, or printed, but also to the *manner* in which those thoughts are *expressed*. But this guiding and this familiarizing of the learner, is less easily effected by means of what is spoken than by means of what is done; that is of what lies printed or written before the pupil, whereby, at the same time, the receptive power of the mind is aided by a second sense, that of the eye. For example: is it not quite another thing when the scholar sees before him the changes in the declension of a word, from what it is when he has to find out, merely by the ear, what changes the word undergoes? Hence the knitting on, if we may use the expression, of the instruction given in language to some piece selected for reading, is far preferable to every other art and manner of teaching.

Here the ground-work is laid on which the teaching of grammar is to be built up, and hereby the pupil learns to feel those forms of speech, and the relations of the different parts of a sentence to each other, which it is the province of grammar to elucidate. From the language itself the child learns to discover the rules of the language, and this is exactly as it should be. In the old method of teaching language it would never occur to the child in reading to think of the structure of a sentence, of its separate parts, its principal words, etc. In the new method the child will and must learn early to think of these things, because, in exercises of expression, he has become familiar with them. What an advance in the linguistic career of the scholar!

b. Let it not be understood that in the teaching of language the reading of detached, though complete, sentences is sufficient, but the reading must be of selections taken as a whole, finished in themselves, in style and in thought.

FREDERICK FROEBEL.

[*From the Guide to the English Kinder-Garten.*]

Frederick Froebel, founder of the Kinder-Garten Schools, was the son of the pastor of the village of Oberweissach, in the principality of Schwarzburg-Rudolphstadt, in Germany. He was a child of unusually quick sensibilities, keenly alive to all impressions, and hurt by discords of all kinds. He took delight in the beauties of nature and of art, and would spend much of his time in studying the lines and angles in the gothic architecture of his father's church. To such a child the aid of a mother is invaluable; but in the first years of his childhood Frederick Froebel lost his mother, and was thus deprived of this all-sufficient help and protection.

The pastor Froebel was too busy to attend to all the little fancies of his son. It was his good practice to be the peaceful arbiter of the disputes occurring in the village, and, as he took his boy with him when he went out, he made the child familiar with all the quarrels of the parish. Thus were suggested, week after week, comparisons between the harmony of nature and the spite and scandal current among men. A fervent love of God, a fanciful boy's wish that he could make men quiet and affectionate, took possession of young Frederick, and grew with his advancing years. He studied a good deal. Following out his love of nature, he sought to become acquainted with the sciences by which her ways and aspects are explained; his contemplation of the architecture of the village church ripened into a thorough taste for mathematics, and he enjoyed agricultural life practically, as a worker on his father's land. At last he went to Pestalozzi's school in Switzerland.

Then followed troublous times in Germany, and Frederic Froebel went out to battle on behalf of Fatherland in the rank

of the boldest. Having performed this duty to his country, he fell back upon his love of nature and his study of triangles, squares, and cubes. He had made sufficient interest to get himself placed in a situation which somewhat satisfied his tastes—that of Inspector to the Mineralogical Museum in Berlin. The post was lucrative, and its duties agreeable to him.

How many men and women go about pale-skinned and weak of limb, because their physical health during infancy and childhood was not established by judicious management. It is just so, thought Froebel, with the mind. There would be fewer sullen, quarrelsome, dull-witted men or women, if there were fewer children starved or fed improperly in heart and brain. To improve society, it is requisite to begin quite at the beginning, and to secure a wholesome education during infancy and childhood. Strongly possessed with this idea, and feeling that the usual methods of education, by restraint and penalty, aim at the accomplishment of far too little, and by checking natural development even do positive mischief, Froebel determined upon the devotion of his entire energy, throughout his life, to a strong effort for the establishment of schools that should do justice and honor to the nature of a child. He resigned his appointment at Berlin, and threw himself with only the resources of a fixed will, a full mind, and a right purpose, on the chances of the future.

At Keilhau, a village of Thuringia, he took a peasant's cottage, in which to establish his first school—a village boys' school. It was necessary to enlerge the cottage ; and while that was being done, Froebel lived on potatoes, bread, and water. So scanty was his stock of capital, that, in order honestly to pay his workmen, he was forced to carry his principle of self-denial to the utmost. He bought each week two large rye-loaves, and marked on them with chalk each days' allowance.

After laboring for many years among the boys at Keilhau, roebel—married to a wife who shared his zeal, and made it r labor to help to the utmost in carrying out the idea of her sband's life—felt that there was more to be accomplished. 's boys came to him with many a twist in mind or temper, ught by wriggling up through the bewilderments of a neg-ted infancy. The first sproutings of the human mind need

thoughtful culture; there is no period of life, indeed, in which culture is so essential. And yet, in nine out of ten cases, it is precisely while the little blades of thought and buds of love are frail and tender that no heed is taken to maintain the soil about them wholesome, and the air about them free from blight. There must be INFANT GARDENS, Froebel said; and staightway formed his plans, and set to work for their accomplishment.

He had become familiar in cottage with the instincts of mothers, and the faculties with which young children are endowed by nature. He never lost his own childhood from memory, and being denied the blessing of an infant of his own, regarded all the little ones with equal love. The direction of his boys' school—now flourishing vigorously—he committed to the care of a relation, while he set out upon a tour through parts of Germany and Switzerland, to lecture upon Infant training, and to found Infant Gardens where he could. He founded them at Hamburg, Leipsic, Dresden, and elsewhere. While laboring in this way he was always exercising the same spirit of self-denial that had marked the outset of his educational career. Whatever he could earn was for his children, to promote their cause. He would not spend upon himself the money that would help in the accomplishment of his desire—that childhood should be made happy as God in His wisdom had designed it should be, and that full play should be given to its energies and powers. Many a nights' lodging he took, while on his travels, in the open fields, with an umbrella for his bedroom, and a knapsack for his pillow.

So beautiful a self-devotion to a noble cause won recognition. One of the best friends of his old age was the Duchess Ida, of Weimer, sister to Queen Adelaide, of England; and his death took place at a country seat of the Duke of Meiningen, on the twenty first of June, eighteen hundred and thirty-two, at the age of seventy.

TECHNICAL education is receiving special attention just now in France. One incident connected therewith is the founding at Rouen of an "Upper School of Industry," organized on the widest basis, and especially intended for the instruction of persons who are to be placed at the head of manufacturing establishments.

EDUCATED EYES.

Very few people, even though entirely uneducated, can look upon a fine antique statute without being impressed by it. Take, for instance, the classic Apollo, as he stands in the haughty and magnificent strength of young manhood, having just sent the death-dealing arrow into the heart of his victim—who can gaze upon this figure unmoved? For not only are the beautiful symmetrical proportions of a perfect human form presented, but there is a significance, a meaning in the attitude and expression which is apparent to the most careless observer.

So forcibly and clearly does this statue reveal itself to the sense of sight, that a strong and lasting impression is produced on the mind; and in proportion as the person beholding it is able to perceive and appreciate its beauty and merit, just in such proportion has his taste become cultivated and refined. For the emotions have been aroused, the imagination awakened by the contemplation of the hero, so superbly free and dauntless; our sympathies are given to him and his cause, and when we turn away and seek to be ourselves again, we find that it is not possible, at least for a time, to descend to our former level—we have been uplifted to a more refined atmosphere and prefer to remain there.

It is chiefly because the Belvedere Apollo, with other renowned statues, is fixed forever in one significant and impressive attitude and expression that uneducated eyes can perceive its beauty. The same eyes look upon, without seeing, the loveliness of earth and air, of water and fire, those elements which are constantly forming for us the most beautiful pictures and forms, ever new, never tiring. How much they lose, those dark, half-blinded eyes! I see their owners rush through the crowded street, hastening to daily toil in the morning, to daily rest in the evening, seeing nothing but the grim stone pavement, (the faces of other moles like themselves; while overhead the 1 ecy clouds go by, veiling and softening the azure dome, and i the far eastward the morning sun glows like a priceless ruby (the Orient, or the far westward lights half the heavens ' th scarlet and gold, and softly fades to rose and amber, and | itly dies away into a pale purple finish before the rising on,

To those who are able to see, life is never wearisome, seldom sad. To them all nature speaks of beauty, of hope, of life. For them the glorious sun is shining, and the dew drops glitter in his rays; yes, even in the crowded city a little patch of grass or climbing vine will make a picture for their eyes—a picture where light and shadow and reflected lights—chiaroscuro and points of brilliancy—are not wanting; where even bizarre and incongruous architecture is softened and mellowed by the misty atmosphere into a stately picturesqueness, while the thronging, moving human forms constantly appeal to the imagination and the heart.

Such a one—the owner of educated eyes—on a journey, is like a child; all things are new, all beautiful. Shut him into a crowded ship's cabin during a storm, and while others are fretting miserably, he will spend a pleasant hour in admiring the delicate complexion of a girl, whose rounded cheek displays the rose and the lily blended, that the old poets were so fond of describing; or the silken tresses, like spun gold, or like the glossy raven's wing, of some fair lady. Put him on deck in the same storm, and the terrible sublimity of air and ocean will fill his spirit with unspeakable emotion. He wanders over a desolate moorland where another would feel solitary indeed, and rejoices in the soft, broad stretches of color and infinite expanse, that the purple heather below and the cool, hazy sky above present to him. A lichen covered bowlder by the roadside furnishes to him both a resting place and a picture, while the delicate ferns spreading in its shadow are but added objects of beauty and pleasure.

Others value a gem for the amount of money it represents, he for its intrinsic beauty; for the clear translucency of the diamond, the flawless, pure opacity of the pearl, the lovely color of the emerald, the ruby, and the amethyst. It is worth while to be a beautiful woman when a man of educated eyes is near—to be a magnificent man when a woman's educated eyes observe—they only can see and appreciate true beauty; they only are not deceived by the superficial and false.

And it is not merely objective beauty that makes an impression upon these gifted ones, these observers; hours of reflection come when beautiful things once seen must be recalled by mem

ory. Then the mind forms a picture and dwells upon it till a train of thought is aroused; the relations of attractiveness to life, to happiness, to progress, are carefully reasoned out and true ideal of subjective beauty is perceived.

He who educates his eyes elevates himself constantly; he adds world upon world to that sphere in which he was originally born. He sees and knows the life of every created thing. The animals, to him, are not mere brute beasts, but a strange and wonderful race of creatures who, indeed, cannot speak like man, but who possess domestic and social affections, who are capable of emotions, of education and progression.

And for him the flowers bloom, the lovely flowers, with their exquisite aroma, their grace and fragility. Of what use, indeed, are these beautiful blossoms but to arouse pleasurable and therefore elevating sentiments in the mind of an observer? So to him the vegetable world is closely connected with the human; almost he can believe when examining the life of certain trees and plants that they also are sentient, that they also have some elements of mind, some consciousness of existence. He who has wondered over the sensitive plant, shrinking even before it is touched, can comprehend the myth of the mandrake that shrieks aloud, "Die! die!" when it is torn from its mother earth. That which to others is but an absurd fable, to him is the key that unlocks the archives of an unknown world and permits his all-observing eyes and questioning, penetrating mind to study the hidden lore of nature.

Not only do men and women of educated eyes add world upon world to the one sphere that contents the unobserving, but by interesting themselves in the mode of life, the duties and enjoyments of all living creatures, they fully use every moment of existence and multiply a thousand-fold that little span of seventy years which the multitude find too long.—*New York Mail.*

THE REVISED COURSE OF INSTRUCTION.

The scanty school facilities enjoyed by a majority of the school districts throughout the State have lead parents and trustees to limit, if possible, all instruction to the imparting of only such knowledge as is considered of importance in common

every-day business transactions. The pressure thus brought to bear upon teachers, together with the conviction of many teachers that the short terms for which schools are maintained, will allow of no further instruction than in reading, spelling, writing, and arithmetic, has imposed such a contracted system of teaching upon our schools that the efforts of several State Boards of Education to infuse some of the modern spirit into our schools have almost utterly failed. The system is contracted not only in regard to the number of studies taught, but also in regard to the methods of teaching. The parent or trustee clamors for the greatest quantity of knowledge which can possibly be acquired within the shortest time. The teacher, by short terms condemned to itinerary, seldom feels that his work is only in continuation of that of his predecessor, and preparatory to that of his successor; but he realizes vividly that his worth will be measured by the amount of *work* which *he* can finish within the short term for which he is engaged. The readiest means to satisfy parent, pupil, and teacher, is to cram by the help of textbooks. *Mastery* of the printed page is seldom thought of; if a child can rehearse, parrot fashion, the printed page, teaching and studying are considered to bear their legitimate fruit. The organizing of knowledge into faculty, if occuring at all, is a matter of accident and not of fore-design. And, generally, the less the pains to master any prescribed work, the greater the haste to enter upon new work. Lack of early advantages, limited opportunities, etc., are pleas usually powerful enough to break down the limits of any course of studies, and permit the free pursuing of such portions as suit the notion or fancy of the parent or child, to the total neglect of such portions as are seemingly of least importance.

As stated above, this unsystematic and unpedagogic way of teaching, or rather of cramming, is caused, must be caused, by the short terms of our public schools and the consequent frequent change of teachers. State Boards of Education, of this and other States, have seen long ago that the only counterpoise is a course of studies which is required by law to be enforced in every public school not under the control of a local Board of Education.

As far as we can learn from State Superintendents' Reports

and educational journals, no State Board of Education, except that of California, has ever prescribed, definitely, any course of studies. The State Boards of Education of most States have declined the task for reasons set forth in the report of the committee of the Indiana State Board, appointed to prepare a course of studies for ungraded schools. We quote from the report as follows: "Their inability [of the committee] arises from the diversity of the conditions necessary to secure uniformity. These are: 1. The irregularity in the length of school terms. 2. The shortness of the terms generally. 3. The inexperience and inefficiency of many of the teachers. 4. The want of thorough, systematic, intelligent supervision of the schools. * * * All that your committee feel justified in doing, under present circumstances, is to make a few suggestions, which, if adopted, will economize the time of the teachers and increase the efficiency of their schools."

The reasons which are advanced by the committee of the Indiana State Board of Education for declining the task of preparing a course of studies, are the very reasons which have convinced not only the present State Board of Education, but also preceding ones, that one of the first, if not *the* first requisites of a common school system adapted to the wants of a whole State, is a graded course of instruction. The shortness of the terms generally, makes it a necessity that when a new term does begin as little time as possible be lost in commencing the work of the term. If the same teachers were always in charge of the same schools, each teacher would know where the work of the previous term ended, and where the work of the new term must begin. But as itinerancy is one of the concomitants of teaching, almost every teacher throughout the State finds himself with each succeeding term in a new district Now, except a teacher knows in what manner and how far a school has been taught, his first care must be to grade or classify the school. Thus usually a month is consumed in the task of preparing the school for the work of the term. If we now take into consideration how many of our teachers are self-made (God save the mark!) without any methods of teaching, or with methods learned from this author or that, or from the bitter

experience of repeated failures, we must see the necessity of some outline map, so to say, from which a teacher may learn *how* the school of which he now takes charge, has been taught, *must* have been taught by his predecessor, and how *he* must teach it so that his successor may not be compelled to lose time in continuing the work. The course of studies is the needed outline map. By it the topics are definitely prescribed which a pupil is required to master each succeeding term, or before he can advance. The course of studies definitely fixes *what* studies shall be pursued, and thus takes away one of the greatest hindrances to thorough education—the giving of prominence to certain studies to the neglect or exclusion of all other studies, according to the idiosyncracies of the teacher, or the fancied needs of the pupil. "The want of constant employment prevents, to a considerable extent, a professional preparation, and as a consequence many persons are selected to teach who are unable to organize, discipline, govern, or instruct a school. Under such circumstances it is not surprising that the selection of the studies and the rate of progress are determined by the children or their parents, and not by the teacher." The remedy is supplied by the course of studies, which selects the studies and determines the rate of progress. The necessity of this is fully appreciated in cities and towns having special Boards of Education. The need of this has been felt long ago by all who are familiar with the workings of country schools. Instead of having a system of instruction determined by the whims of children, or the mistaken or short-sighted views of parents, or the inexperience, incompetency, or listlessness of the teacher, a system is presented which is somewhat in accordance with the experience and advancement of the age.

The course of studies also secures a uniformity in organization, classification, and methods of instruction, which is of great importance to reduce to a minimum the evils resulting from a frequent change of teachers, and the inexperience and insufficiency of many of the teachers. Any general system of organization, no matter how imperfect and binding upon those impatient of limits and control, is preferable to the constant reorganizing and reclassifying consequent upon the advent of each new teacher. If organization and classification are left to the tact,

skill, and experience of each individual teacher, no system is possible.

We hope that the above will lead parents, trustees, teachers, and County Superintendents to consider and weigh the benefits of those provisions of the School Law of California which make it the duty of the State Board of Education to prescribe, the duty of County Superintendents and Trustees to enforce, and the duty of the teachers to follow, a uniform course of studies. In these provisions of the law California is far in advance of many of the older States. Very little benefit has thus far been reaped from these provisions, which have been in force for years, on account of the supineness or opposition of school officers and teachers. But the best interests of our schools can no longer be thus neglected, and the Revised Course of Studies, adopted by the State Board of Education, February 14th, 1873, in accordance with the provisions of subdivision four of section one thousand five hundred and twenty-one of the Political Code, must be strictly enforced on and after July 1st, 1873. Subdivision five of section fifteen hundred and forty-three of the Political Code makes it obligatory upon County Superintendents to enforce the course of studies; and any neglect to do so will make the delinquent County Superintendents liable to the penalties of sections one hundred and seventy-six and seven hundred and seventy-two of the Penal Code. Subdivision ten of section sixteen hundred and seventeen requires Trustees to enforce the course of studies. No teacher is entitled to draw as salary any public schools moneys, except he or she has enforced the course of studies. The salary of any teacher failing to do so must be withheld under the provisions of section seventeen hundred of the Political Code, otherwise the officer drawing such warrant can be held responsible on his official bond for every dollar so paid out.

In the *Manual* (now in course of preparation) which is to accompany the Revised Course of Studies, will be given full instructions in regard to methods of instruction, grading, classifying, and examining.

DO TEACHERS TEACH?

[*From The Western.*]

The paradoxical question that forms the caption of this article, will be recognized by some of my readers as a conundrum proposed by Col. F. A. Seely, in a very able and witty essay, read before the Educational Convention, recently held in St. Louis. He answered the question in the negative—teachers do *not* teach. Whether we shall be compelled to assent to the truth of his position, depends on what he means by teaching. He did not tell us exactly what he meant; perhaps he reserves that for some future essay. Meantime let us enquire if there is any sense in which it is true that teachers do not teach.

We are all indebted to the able and learned Superintendent of the St. Louis Public Schools, for the persistency with which he has defended text-book instruction, and called attention to the truth that to give the pupil the mastery of the printed page, is one of the very best things the school can do for him. The people of St. Louis, particularly, owe him a debt of gratitude for his part in the introduction of a system (Leigh's Phonetics), by which several months' time is saved to their children in learning to read, and so much time is added, practically, to their school career.

Mr. Harris is undoubtedly right in insisting that the school must "teach the pupil how to gain knowledge from books;" "to use the printed page so as to gain intellectual nourishment therefrom," and that no system of instruction would be worth anything unless it did this. This truth cannot be emphasized too strongly.

But there is another phase of the matter that needs to be kept in view, another truth that needs to be emphasized: "To give the pupil the ability to use the printed page to the best advantage," is certainly *a* great object, possibly, *the* great object, but surely not the only great object of the instruction in our schools.

What is the supreme function of education? The word education stands not for a single, definite idea, but for a very complex congeries of ideas. It means different things to different minds. It maps a region not fully explored, and of uncertain

boundaries. I am well aware that each thinker is prone to run sharp lines around that part of this wide field with which he is most familiar, and to forget there is anything outside of his narrow boundaries; as the rustic youth imagines that he sees the whole world from the steeple of the parish church. If, therefore, I use the term in this paper in a somewhat restricted sense, I do so knowingly. I wish to emphasize a view of the subject that has been growing in my mind for years.

I fancy that before reaching this point, the reader of this essay (if it shall find a reader), has answered my question, by saying that the supreme function of education is two-fold: to increase knowledge, and to discipline the mind. To most minds, I suppose, education resolves itself, for the most part, into the two things—knowledge and discipline.

But, gentle and hypothetical reader, what is meant by mental discipline? I am not satisfied with the phrase; it is too indefinite. It, too, stands for a vague complex of notions, of which each sees a part, and too often mistakes it for the whole. "Discipline," says Professor Whitney, "is a word with which not a little conjuring is done nowadays, by men who fail to understand fully what it means. * * * He who sets up discipline and knowledge as opposed to, and excluding each other, wholly misrepresents their mutual relations, and casts the advantage into the hands of his adversaries. In reality, the connection and interdependence of the two are complete: no discipline without valuable knowledge acquired; all valuable knowledge available for discipline; the discipline in proportion to the amount and value of the knowledge acquired; these are fundamental truths in the theory of education." I would qualify this by adding that the discipline is in proportion, not only to the amount and value of the knowledge acquired, but also to the degree in which the method by which the knowledge is acquired, approaches the rational method. Indeed, Professor Whitney recognizes the truth that the value of instruction for discipline, depends not only on the amount and character of the knowledge acquired, but also on how it is acquired; for he says further on (see the essay on Language and Education in *Oriental and Linguistic Studies*): "To teach, therefore, facts, items of positive knowledge, and then lead the mind on by degrees to their con-

nections and relations to generalization and inferences is the method that nature prescribes for imparting knowledge; and it is also the true disciplinary method."

The supreme function of education is the organization of knowledge into faculty. "No man can be called educated," says Whipple, "until he has organized his knowledge into faculty, and can wield it as a weapon." What is the organization of knowledge into faculty? "The organization of knowledge," says Herbert Spencer, "is the union of facts into generalizations." Here again, is implied the priority of facts to generalizations in a rational order.

But Stuart Mill expresses my leading thought better in a sentence quoted in a former article in this journal "The aim of all intellectual training for the mass of the people, should be to cultivate common sense; to qualify them for forming a sound, practical judgment of the circumstances by which they are surrounded." This, in brief, is the view I seek to enforce. According to this view, the aim of instruction is not merely to give the pupil knowledge, no matter how definite, positive, and useful. It is not merely to teach him to use books as sources of knowledge. It is not to cram him with information by any method, either text-book or oral. It is to train his common sense, to cultivate his judgment, to form, rather than to inform his mind, or, better, to form by informing. It is to train him into correct mental habits; to train him to observe carefully, to distinguish between things; to be sure of his facts; to reason correctly; to think for himself, and neither to express nor to hold opinions, unless he is entitled to do so by accurate and extensive knowledge of the subject under discussion. The highest type of mind is the judicial. This the true education aims to produce. It aims not so much to make scholars, as thinkers. Not what one knows, but what he can do, is the criterion by which it would be tested. "The knowledge that will hold good in working, cleave thou to that," says Carlyle. Free thought, untrameled investigation, a bold, alert, and intrepid, and, at the same time, a modest and humble independence of mind, are quite as necessary as mere learning, both to the culture of the individual and to the progress of the race.

If this is what is meant by teaching, then I fear we shall have

to confess that Colonel Seely is right. It seems to me that there is no more pressing need in our schools to-day than the want of this kind of teaching. It will be seen that in this view the method is all-important. If merely to impart knowledge were all, there would be little choice between the oral and the text-book method. The latter is superior in accuracy and system, the former in vividness. It would be difficult to strike a balance between their rival claims. But to impart knowledge is not all. It is quite as important *how* knowledge be imparted as *that* it be imparted. In order to teach the pupil to discriminate, it must be given in such a way as to make him discriminate. In order to train his common sense it must be given in such a way as to exercise his common sense. In order to be organized into faculty, and to minister to mental growth, it must be given in that order in which the mind can best grasp, organize, and assimilate it.

Here will appear the immense superiority of oral instruction, in the hands of one that knows how to use it, over text-book teaching. It is better because, as has been shown, the order in which facts and ruths are presented to the mind, is not a matter of indifference; and the text-books generally reverse the true order, giving definitions, rules, and generalizations, before the concrete facts, out of which they are built; words before the pupil has got the ideas for which they stand; the results of observation and experiment before the pupil has made any observation or experiment; the net product of ages of inquiry before the pupil has gone through any inquiry whatever. "Of the various kinds of cram," says Professor Whitney, "by far the worst is that which crowds in prematurely the derived results of learning, inferences, and beliefs, systems, and general truths. This is the strong meat that must not be set before babes."

It is better, because the teacher, being on the ground and dealing with pupils whose surroundings and associations are known to him, can "hit the nail on the head" better than the author of the text-book, who writes for many different schools in all parts of the country. He can adapt his instruction to particular cases and local requirements, which the book cannot do. He can avail himself of his knowledge that we think in

relations; that all knowledge consists in the establishment of relations between phenomena; that to know anything is to bring it into relation with something already known; that to acquire new facts is either to come at them directly through the senses, or bring them into relation with facts previously acquired through the senses. Knowing the extent and kind of his pupil's acquirements (their actual, not their second-hand knowledge), he knows best how to connect what he wishes to teach them, with what they already know; to link fact with fact; and truth with truth, so deftly that knowledge is organized as fast as it is acquired.

Again, it is a maxim in teaching that pupils should never be told what they can be led to find out for themselves. Says Stuart Mill: "If there is a first principle in intellectual education, it is this—that the discipline which does good to the mind, is that in which the mind is active, not that in which it is passive. The secret for developing the faculties is to give them much to do, and much inducement to do it."

Now, strange as it may sound, the charge made against oral teaching, that it makes of the pupil a mere passive recipient, while it is true only of bad oral teaching, is true of all text-book teaching (at least with the books in common use), and cannot be otherwise than true. The pupil that sits down to learn a lesson from a text-book, is compelled to be a mere passive recipient of what the author tells him. There is no help for it; there is the task, and he must learn it or fail at the recitation. On the other hand, the skillful oral teacher (and only a master mind can use the method successfully), can keep the faculties of the student continually on the stretch, recalling former sense perceptions, tracing the relations and implications of familiar facts, observing, experimenting, comparing, distinguishing, inferring, and reasoning.

The child thus becomes an investigator, in order to become a scholar. True, he must rediscover facts and truths well known for ages. But this, instead of being an objection to the system, is one of the strongest arguments in its favor. Surely, no one that has felt the delight of original thought and discovery, would deny that supreme intellectual joy to children; especially

when he considers that such joy is one of the strongest incentives to further effort; that such exercise is the one best calculated to develop the powers of the mind; and that acquisitions made in this manner, are beyond all comparison, more valuable, though less extensive than the showy, but superficial results of rote teaching. Moreover, original thought and investigation is the mental exercise that is best calculated to develop the student's individuality of character. And here I must quote Mill once more: "The present civilization tends so strongly to make the power of persons acting in masses, the only substantial power in society, that there never was more necessity for surrounding individual independence of thought, speech, and conduct, with the most powerful defenses, in order to maintain that originality of mind and individuality of character which are the only source of any real progress, and of most of the qualities that make the human race much superior to any herd of animals."

It seems clear, therefore, that better results can be obtained by a judicious combination of oral and text-book teaching, than by either exclusively.

Enough text-book teaching to give pupils the mastery of books as sources of knowledge; enough oral instruction, properly given, to accomplish the object that I have endeavored to point out. He that best fulfills these conditions is the teacher who most truly teaches. Such, I believe, will be the Coming Teacher.

A. F. HAMILTON.

DEPARTMENT OF PUBLIC INSTRUCTION.

A County Superintendent submits the following questions:

First—Can a person who has neglected to attend the March examination, and holding no certificate whatever, take a school immediately thereafter [the March examination], teach till June, then passing a successful examination, draw pay out of the public School Fund for the time she taught without a certificate?

Second—Can a person who *has* held a third grade certificate, and fails to secure the requisite seventy per cent, pursue the course mentioned above?

We answer to both questions, *decidedly no*. A full decision on the above questions was published in THE TEACHER for December, 1872, page 204, last paragraph. Perhaps it will be not amiss to restate the decision. No school is a public school unless the teacher or teachers employed in the school are the holders of legal certificates, in full force and effect *at the time school is commenced and during the whole time it is maintained*. And no school district is entitled to receive any apportionment of State or county school moneys unless the teachers employed in the schools of such district hold legal certificates of fitness for teaching, in full force and effect. (Section 1,860 of the School law, or rather the Political Code.) No County Superintendent has the power to draw any warrant for the salary of a teacher until he, the County Superintendent, has seen such teacher's certificate, and satisfied himself that it is in full force and effect, and will be while the teacher has charge of the school. A certificate, in full force and effect, is one which is valid—that is, the time for which it was granted is not yet expired; is properly indorsed on the back; corresponds in grade to the grade of the school taught by the teacher, or at least is not of a lower grade than the school; and lastly, is either a State certificate, or a certificate granted in the county or city where the holder is teaching. If any one of these four provisions is not complied with, the holder cannot draw, as salary, any public school moneys, nor can the district receive any apportionment of public school funds. County Boards of Examination can grant certificates *only* upon examination, or upon Normal School certificates. A County Superintendent may issue temporary certificates, in accordance with the provisions of subdivision six of section one thousand five hundred and forty-three. Every Board may renew the certificates issued by it, provided that the application for a renewal is made at the next regular meeting of the Board of Examination. Temporary certificates cannot be renewed. Upon the back of a certificate granted upon an examination, must be indorsed the standing of the applicant in each study and in the class. If a certificate is renewed, the standing must be transferred. If a certificate is granted upon a Normal School diploma, the indorsement will: Granted upon [insert the name of the State] State Normal School diploma.

Before the June number of THE TEACHER can come to hand a majority of the Census Marshals will have begun the taking of the census. This is, therefore, the last opportunity we have of calling the attention of County Superintendents to the new edition of blanks which we have prepared for this year's census. County Superintendents who are not yet supplied with the new blanks will please send for them. *Use none but the new blanks.* On the back of these blanks are printed the following instructions to Census Marshals:

1. Obtain from the Trustees or County Superintendent the exact boundaries of your district. 2. Report all the statistics asked for. Incomplete reports are not to be accepted by the County Superintendent. 3. Include in your report all children (whose parents or guardians are residents of the district) that are absent, attending institutions of learning. Do not include in your report children who are attending institutions of learning in your district, but whose parents or guardians do not reside therein. 4. If your district lies partly in two adjoining counties, you must report to the Superintendent of each county. 5. Be particular that the children listed in columns 1, 2, and 3 are properly distributed into columns 5, 6, and 7. In listing the children who have attended private schools at any time during the year, be careful to list only those who have *not* attended public schools, but private schools *only*. 6. Foot up each column. *Check your additions.* The sum of the totals of columns 5, 6, and 7 must equal the sum of the totals of columns 1, 2, and 3. 7. You must subscribe to the annexed oath, and deliver, on or before the first day of July, a copy of this report to the County Superintendent, and a duplicate copy to the School Trustees.

We have printed also a new edition of Teachers' Reports, but as we have embodied in them the divisions of the new course of studies, which does not go into effect until on and after July 1st, 1873, it will prevent confusion if the reports for this year are made upon the blanks heretofore issued. Should, however, a County Superintendent be compelled to use the new blanks, it is necessary that he call the attention of teachers to the fact that in the new course the third grade has four divisions, and the second grade only two, because the third division of the second grade has been made the first division of the third grade; and the first, second, and third division of the third grade have been made the second, third, and fourth division respectively. Teachers must bear this in mind in case they have to use the new blanks in making this year's report.

The "Instructions to Teachers" which are printed on the second page of the new blanks must be strictly followed, no matter which blanks are used. For the benefit of those teachers who may not receive blanks on which these instructions are printed, we give them herewith:

1. Every Public School Teacher whenever he ends a school term, whether at the close or in the middle of a school year, must report to the County Superintendent. No warrant must be drawn in favor of any teacher except a complete and correct report has been *received* from such teacher. 2. In schools having more than one teacher, the principal alone must report; but such report must include *the statistics for the whole school.* 3. In districts in which, during the year, several terms are taught, every report must, except the first, include the statistics of any previous report of a part of the same school year, and the last report must include all the statistics for the entire school year, notwithstanding any previous report of a part of the year. Such final report must be in the hands of the County Superintendent on or before the tenth day of July. 4. In regard to the statistics to be given on the first page of the report, the following instructions must be *strictly* followed: After giving the names of the months for which the report is made, in column 1 must be given the number of days school was kept open in each month; the total for the term or year is found by addition. The entries for columns 2 to 10, inclusive, are taken from the register. In columns 5, 6 and 7 are to be entered for each month the number of pupils actually on the register, and not simply these who have re-entered school, or entered school for the first time during that month. The total for columns 2, 3 and 4 are found by addition. The total for column 5 must be the same as the total number of boys given in column 11; the total for column 6 must be the same as the total number of girls given in column 11; the total for column 7 is equal to the sum of the totals of columns 5 and 6. The total for column 8 is found as follows: Add the totals of columns 2 and 3 and divide the sum by the total of column 1—the quotient is the total (or rather average) of column 8. The total (or average) for column 9 is the quotient obtained by dividing the total of column 2 by the total of column 1. The total or average for column

10 is found by dividing the total or average of column 9 by the total or average column 8. In column 11 must be entered for the first month every pupil who entered school during that month. After the first month, entries are only made as pupils enter for the first time during the school year. The total is found by addition. The object of column 11 is to give the whole number of pupils who have attended public schools at any time—no matter how short—during the school year. To consider, therefore, as some teachers do who have taught in a school more than one year, those pupils only as "new pupils" who never came to school before while said teachers were teaching, is not correct. 5. In regard to the "General Statistics," teachers must pay strict attention to report correctly the number of pupils for the different divisions of each grade. All questions asked must be answered in full. 6. If a report is incomplete or incorrect, County Superintendents must not draw any warrant in favor of a teacher making such incomplete or incorrect report, until such report is completed and corrected.

If County Superintendents will take pains that the instructions given above are strictly followed by the Census Marshals and teachers respectively, none but clerical errors can creep into the Superintendents' Annual Reports. In this connection we desire to call the attention of County Superintendents to the importance of having this year's reports as free from errors as possible. For, if we grant County Superintendents till the 20th of August in which to report, we shall have no time in which to make corrections. Our report to the Governor and Legislature is due on the 1st of August; and, though it will be impossible to report at that date, we must report as soon as practicable after that date. We, therefore, give notice that if any report is grossly incorrect, or not on hand by the 20th of August, the provisions of section fifteen hundred and forty-four will immediately be enforced. Subdivision fourteen of section fifteen hundred and forty-four makes it the duty of County Superintendents to report *when directed by the Superintendent of Public Instruction*, showing such matters relating to the public schools in his county as may be required of him. The State Superintendent hereby directs County Superintendents to report on or before the 20th of August—that is, their reports must be in the hands of the State Superintendent by the 20th of August. The statistics to be reported will be given in the blanks, which, in due time, will be sent from this office.

In previous numbers we have explained the method of collating the statistics relating to the census and schools. We come now to the Financial Statistics—Expenditures. Last year we advised County Superintendents to depend for these statistics not upon the Trustees' Reports, but upon their own books. Every County Superintendent is able, must be able, to tell how much a district spent for teachers' salaries; how much for rents, repairs, fuel, and contingent expenses; how much for the school library; how much for school apparatus; and the total of all these expenses gives the *total current expenses*. *En passant*, we may remark that some County Superintendents were too much in a hurry, or to give our real thought, too lazy to add together the different items of expenses above enumerated, so as to show the total expenses for the different districts. In one county, having sixty-nine districts, the total current expenses for not a single district were given. If, as advised, County Superintendents take their own accounts instead of the Trustees' reports, they must pay attention that the monthly salary paid teachers at the number of months school was maintained, gives the cash paid out for teachers' salaries. In the county above cited—and in almost every county in the State—we have statements like the following: Teacher received $100 per month; school was maintained ten months; paid out for teachers' salary $459. Now, according to our arithmetic, the amount paid out for teachers' salary should have been $1,000. To prove that no ten months' school was

maintained, or if this was the case, that the teacher received only $45 90 per month instead of $100 as reported, we may state that the district, which is credited with the above brilliant finance-engineering, had a balance of $460 36 to its credit at the end of the school year; whereas, if a ten months' school at a monthly salary of $100 paid the teacher was actually maintained, the district would be some $541 in debt. We might give hundreds of instances where schools were maintained for a length of time, and at teachers' salary, in inverse ratio to the amount expended. It may be held that in such cases the district contracted a debt for a part of the time the school was maintained; but on examining the reports we find that in nearly every case the district has a balance to its credit at the end of the school-year. Two explanations occur to us: First, at the close of the year the orders given for teachers' salaries may have not been all presented; so that, though a balance is reported on hand, yet, actually, the money is already expended. In such cases we request County Superintendents not to report the balances shown by their books on the 1st of July, but to deduct from such balances all outstanding indebtedness incurred by the districts up to June 30th. In order to do so it may be necessary to defer the making up of the "Expenditures" until the last thing. Secondly, though the expenditures are correct as reported, yet the County Superintendent may have guessed either at the length of time schools were maintained—one County Superintendent at least acknowledges to have done so—or he may have guessed at the monthly salary paid. Both these data are required to be reported by teachers and trustees; both data ought to be the first fruits of even the most superficial superintendency of the schools of the county; to have these two data correctly reported is of the utmost importance to us in order to have a basis which will shape the suggestions we may have to make in order to induce the next Legislature to grant an increase of school revenue. County Superintendents in making up the *expenditures* must report all the sums actually drawn from the treasury during the school year, and, if there are outstanding debts for which no orders are drawn or presented at the close of the school year, the amounts of these debts must be included in the expenditures, *if a balance is on hand in the treasury sufficient to pay these debts.* If a balance is on hand sufficient to pay only a part of the claims outstanding, only so much as will exhaust the balance must be included in the expenditures. If all the funds to the credit of a district are expended at or before the close of the school year, of course no outstanding claims can be included in the expenditures, otherwise, as sometimes nay frequently is the case, the expenditures will exceed the receipts.

In reporting the monthly salary paid a teacher, the County Superintendent must report the amount which is actually drawn out of the treasury, and not the amount reported by Trustees and teachers. For, in cases where the teacher is "boarding round," or boarded by a family for some such consideration as private instruction furnished the family, etc., the salary paid such a teacher out of the public funds is usually lower than it would be if the teacher had to pay for his board out of the salary paid by the district. The actual salary received by the teacher is the cash drawn out of the treasury, plus the board and other considerations furnished by the district in common, or by some family or families; and the Trustees and teacher are apt to report this *actual* salary. But the *cash* drawn from the treasury for salary being less than the *actual* salary, will enable the district to maintain the school for a longer time than if the full salary were paid in cash drawn from the treasury. Hence the *cash* drawn monthly out of the public funds for salary is to be reported as the

monthly salary paid teachers. County Superintendents must be careful that in their next reports the cash paid for teachers' salaries is in direct ratio—and not in inverse ratio as frequently heretofore—to the number of months school was maintained at the monthly salary reported paid teachers.

It may have been noticed that we have apparently overlooked a case in which may occur a discrepancy between the cash actually paid for teachers' salary and the amount which ought to have been paid according to the time school was maintained. This case may happen when a district maintains a school longer than it is able to pay for out of the public school funds, and where the deficiency is either paid by private subscription or left unpaid until at the end of some future school year an unexpended balance accrues with which to pay the indebtedness. The rule for all cases must be that the County Superintendent report only such expenditures as can be paid out of the receipts. If, in addition to the funds obtained from the State and county apportionments, subscriptions or taxes are raised and are included in the *receipts*, then the full amount actually expended must be reported; but if the subscriptions or taxes are not included in the receipts, or if the district contracts a debt, then only the amount actually drawn from the treasury is to be reported. In all cases the monthly salary paid teachers must be found by dividing the amount paid for teachers' salary by the number of months school was maintained.

In regard to the *receipts* we have to make only one remark: In all cases the receipts must at least equal, if not exceed, but never fall below, the expenditures. The total expenditures, plus the balance on hand at the close of the school year, must equal the total receipts. If, as already stated above, County Superintendents cannot ascertain the amount received from rate bills, subscriptions, and miscellaneous sources, then so much of the expenditures as were covered by the funds so raised, must *not* be reported.

According to the decisions of the Supreme Court of the State of California, in People vs. Hastings, and People vs. Sargent, the special district tax to be levied by Boards of Supervisors and Auditors, under the provisions of sections 1,845 to 1,848, inclusive, of the Political Code, is illegal and void. The State Board of Equalization has instructed Assessors and Supervisors to discontinue the levying of said special district tax. If districts need additional school facilities they can raise them only under the provisions of section 1,830 *et seq.*

State certificates for the following named persons remain uncalled for in the office of the State Superintendent of Public Instruction, at Sacramento:

Miss Addie E. Aiken,
Mrs. Laverna Allen,
Miss M. J. Alderson,
Miss Julia V. Ashley,
Miss Sarah Avery,
Miss Anna Bryant,
Mary Brier,
Hugh Joseph Byrne,
Miss Lizzie M. Brooks,
Zervia E. Cornelius,
Miss Joanna T. Casey,
Margaret J. Carothers,
Miss Louise M. Coffin,
Anthony W. Dozier,
Miss L. B. Easton,
Miss Mary C. Fitch,
Charles E. King,
Miss Mary S. Kimball,
Miss Ida M. Kervan,
Miss Nellie M. Kelsey,
Miss Esther Levy,
Miss Nellie F. McFarland,
Miss Lucy C. McNear,
William H. Magoon,
Miss Maria O'Connor,
Miss Annie M. O'Brien,
Miss Carrie Pearce,
H. S. Raven,
Miss Addie E. Rogers,
Mrs. Mary W. Rise,
Edith Rivers,
Ella Russell,

Juliet A. Fisk,
Thomas P. Grasty,
Miss Alice Hall,
Mary C. Hall,
S. M. Hunt,
Miss M. E. Hogan,
Henry C. Higby,
Mrs. Carey W. Jones,
T. E. Kennedy,
Mrs. M. S. P. Robinson,
J. H. Sewell,
Miss Fannie Savage,
Helen R. Stevenson,
Jules Simon,
F. A. Stowell,
Miss Ettie L. Thompson,
May F. Teague,
Emory Watkins.

CONTRIBUTIONS IN AID OF THE UNIVERSITY.

First—D. O. Mills of the Bank of California, has purchased at a cost of several thousand dollars, a cabinet of ore, minerals, fossil animals and plants, and aboriginal stone implements. This cabinet has been brought together during a series of years by C. D. Voy, of Oakland, an enthusiastic and skillful collector, and is well known both at the East and west, among men of science, as an admirable exhibition of the geological characteristics and mineral resources of the State of California. It has been favorably commended by Professor J. D. Whitney, geologist of the State of California, Professor O. C. Marsh, of Yale College, Professor Joseph Le Conte, of the University of California, Lesquereux, of Pennsylvania, and others. The cabinet will grow more and more valuable as the years roll on. It is already transferred to the University, but will probably not be opened to the public view until the rooms to be provided for it, at Berkeley, are made ready.

Second—The Mechanics' Institute has transferred to the University a valuable collection of Japanese mineral and vegetable products, sent to this country in 1871 by the Japanese Government.

Third—Louis Janin has given a small but very choice collection of gold, silver and cinnabar ores from this and other countries.

Fourth—S. F. Butterworth has presented a bound set of the New York *Daily Times*, from its foundation until the close of the recent war.

Fifth—H. J. Booth & Co. have given to the metallurgical collection a five-stamp battery complete.

Sixth—George M. Blake, of Oakland, has given to the Regents of the University a tract of ten acres of land adjacent to the University site at Berkeley upon the sole condition that it be forever kept unincumbered for the purposes and uses of the University.

Seventh—Michael Reese, of San Francisco, has presented to the University the library of Dr. Francis Lieber, of New York, a collection of some 8,000 books and many rare pamphlets. The price of the library is $2,000.

Eighth—Three gentlemen of Oakland, interested in the progress of the University, have contributed to the purchase of educational apparatus the following sums: William H. Raymond, the sum of $1,500, for a purpose not yet designated; Charles W. Howard, the sum of $500, for photographs and maps illustrative of Greek and Roman antiquity; and Henry D. Bacon, the sum of $500, for diagrams and models illustrative of civil engineering.

Ninth—The unconditional conveyance to the University of the building, land, and scientific apparatus of the Toland Medical College, amounting in value to the original gift of its generous and enlightened founder, Dr. H. H. Toland of San Francisco.

EDITORS' TABLE.

WELL PUT.—In his address before the Massachusetts Teachers' Association, recently held at Worcester, Professor Hammond said: A master of the art of persuasion once said to me: Your schoolmaster power, talent, or tact, call it what you please, I cannot comprehend. I can move an audience as I please; you, it appears, can keep an audience as you please. I know how to *move* men or boys to laughter or tears by turns. I can *move* them to shout at the top of their voices, or throw their caps high in the mid-air. I can wrest money from their pockets by their own unwilling hands, for an object in which they have no care, except their interest in me as its defender; but how to *move* boys to *keep still;* how to *move* an inactive, unwilling mind to *keep* studying; how to *move* a mischievous, mimicking, rollicking urchin, to *keep* sober by the hour together, I cannot tell. Put me in a school room and tell me what is the first thing to do, and then you would have to tell me what is the next thing to do. I can *move* a school, if that is all that is wanted; but how to *move* to *keep* a school, that is one great mystery to me.

LATIN GRAMMAR.—In the same convention, Professor Hill, of Chelsea, speaking of *Latin as a means of popular education*, said: "Latin helps us in English grammar. Well, we need help badly enough, and doubtless get some. But does not this argument look rather grim, when we consider that the English language became strong and developed a literature without the aid of grammarians; that English grammar was an after-thought, modelled in nomenclature and rules after Latin grammar, but having little else in common with it? Does not it admit that there is less sense in our technical English grammar than in Latin, or that our mode of teaching English is defective, or that something is "rotten in Denmark," when we resort to a dead language to help us in a living one, and that our mother-tongue? The simple fact is, that if the faithful teacher compares English usages with Latin, pointing out the few agreements and the numerous differences, the pupil's knowledge of English grammar is incidentally improved, and might be in the study of any foreign tongue. But this incidental help does not alter the fact that the straight-forward, face-to-face way of studying English is the most profitable as well as the most economical. How much of the help which Latin is supposed to render English grammar may be due, after all, to the greater maturity of the pupil, when he enters upon Latin, I will not attempt to discuss. Latin unlocks the meaning of many English words that come from it. But when we add words to our vocabulary, we are guided by usage first, and investigate hidden meanings afterwards. It is a pleasurable surprise, after using a word a score of years, to peep into it and see how admirably its inner sense justifies its use. A moment's reflection fourteen years ago might have revealed to me the inner sense of the word *discreet*. I did not indulge that reflection, however, until a few days ago. I appeal to every classical student, if he does not use hundreds of words to whose inner chambers he has the key, but has never used it? It is pleasant to unlock these words; but that a course of study in Latin, however profitable, is essential to a correct use of them, I deny. If essential, a knowledge of Greek and Anglo Saxon is essential too. If essential, it is a waste of time to use any of the numerous works that treat of word-analysis. If essential, our dictionaries and books of synonymes lose in value. If essential, we have unsolved problems in a host of able men who have written in innocence of Latin."

STATE NORMAL SCHOOL MATTERS.—About four months ago, at a meeting of the Board of Normal School Trustees, Professor H. P. Carlton was summarily removed from his position as Vice Principal of the State Normal School. The surprise and indignation concerning this action was so strong and universal in educational circles, that at a subsequent meeting Professor Carlton was reinstated. At the recent meeting, however, the original programme was put through, and Mr. Carlton was finally removed. No cause for this action has been made public. It is generally understood, however, that the crusade against Mr. Carlton originated mainly in the personal ill-feeling of the member of the Board from San Francisco, who, since he became a member of the Board, has been unceasing in his efforts to effect the change. Governor Booth and State Superintendent Bolander were in favor of retaining Professor Carlton. The action of a majority of the Board is in keeping with the general mismanagement of the school, including the erection of an educational barn at a cost of $300,000. It is no discredit to Mr. Carlton's ability, as a teacher, to be removed by such a Board. We do not desire to make further comments on the case. We give the following extracts from a letter addressed to Governor Booth by George W. Minns, a former Principal of the school (now in Boston), to show an unbiassed opinion of Mr. Carlton's merits as a teacher:

To his Excellency, Newton Booth, Governor of California: My friend, Mr. H. P. Carlton, Vice Principal of the California State Normal School, writes me that there is a possibility of his losing his present position, at the meeting of the Board of Trustees, in March. I trust that there may be no impropriety in my writing to your Honor upon this subject. My excuse for so doing is, that I was for ten years connected with the San Francisco High School, and afterwards, for one year, Principal of this same State Normal School; and I hope that the deep interest I naturally take in the cause of public education in California, and my long and intimate acquaintance with Mr. Carlton, will relieve me from any imputation of intermeddling. I may say that I am prompted to write by the warm friendship and the sincere respect I have for Mr. Carlton, and my knowledge of the eminent services he has rendered in California; and I should be unworthy of the name of friend or man if I were not ready on all proper occasions to express the cordial good will and the sentiments of high esteem I feel for him. I have known Mr. C. since 1856. He has always been identified with the interests of the public schools of California. He has been in the State Normal School almost since its foundation. He is an able, faithful, and conscientious teacher, possessing a true enthusiasm for his vocation; a diligent scholar, and continually improving. He was much beloved by his pupils, and won the confidence and respect of all by the manner in which he discharged his duties, and by the unimpeachable excellence of his moral character. I have summered and wintered him for years; I have been closely associated with him, and if I could find stronger words to express my sense of his worth, I would use them. I hope the Board of Trustees will conclude to retain at his post, a man who has labored so long in the vineyard, bearing the heat and the burden of the day; one who has devoted so many of the best years of his life to the advancement of the cause of public education in your wonderful State; and that having been found faithful in the day of small things for the State Normal School, he will be permitted to stand a living pillow in the beautiful edifice erected in San José. I believe all Californians will show a generous consideration for the faithful public servant. I write this without Mr. Carlton's knowledge, and obeying nothing but the dictates of my own heart, and my conviction of what is due to the merits of a true old friend.

I have the honor to be, very respectfully your obedient servant,

GEO. W. MINNS.

Boston, February 15th, 1873.

The following document was not presented to the Board, because it was understood that nothing could break the ring organized to remove Mr. Carlton:

OAKLAND, March 25th, 1873.

To the Honorable Trustees State Normal School—Gentlemen: The sincere friendship we entertain for Mr. Henry P. Carlton, and the high estimate we place upon his

scholarship and professional skill, prompt us to solicit from your honorable body his reappointment to a position in the State Normal School. The efficiency and the popularity of this institution will be maintained by his continuance in office. We venture to affirm that if the question of filling Mr. Carlton's present position could be referred to the teachers of the public schools, no other candidate would receive a larger vote or a more enthusiastic support than he. Mr. Carlton's fellow teachers—and especially those who are pioneers in the cause of education on this coast—have always held him in great respect, and during late years, whilst he has been extending his researches into the domain of science and art, they have conceived a marked admiration for his ripened scholarship. The State Normal School, moreover, is so closely identified with our other public schools and their instructors, that, if for no other reason, a proper deference to the opinions and wishes of these schools and teachers, will influence and determine the re-election of Mr. Carlton. What these opinions and wishes are, such representative school men as Professor Bolander, Professor George W. Minns, Dr. Fitzgerald, and Messrs. John Swett, Bernhard Marks, Theodore Bradley, and D. C. Stone, can best state, as on many a gathering of the school fraternity, they have expressed themselves. We have known Mr. Carlton, as a teacher in this State, for fifteen years, if not longer. Throughout this long period of poorly compensated labor, within which time most men of Mr. Carlton's abilities would in other vocations have become enriched, he has had at least the satisfaction of being undisturbed by any school authorities, whatever may have been their political bias. And we confidently believe and trust that your honorable Board will not take the initiative in the removal of a teacher of the State Normal School, an institution for whose continued prosperity we shall ever labor.

With sentiments of the highest respect, we remain your most obedient servants,

HENRY DURANT,
M. KELLOGG,
E. S. CARR,
WILLIAM SWINTON,
G. B. McCHESNY,
GEORGE TAIT.

THE building for the College of Agriculture, at Berkeley, is nearly completed. It will cost about $200,000. It is built of granite, brick, and iron, and is in every respect an edifice worthy of the State University. It affords a remarkable contrast to the educational barn built for the State Normal School at a cost of $300,000. The Superintendent of the building, J. W. Duncan, has reason to be proud of the faithful, honest, and capable manner in which he has discharged his duties. The building for the College of Letters will be completed by September next. It will be built of wood, under the general direction of Dr. Merritt. The University will move to Berkeley next October.

PERSONALS.—Miss Mary Pascoe has been elected Vice Principal of the Broadway School, *vice* Miss Tibbey, suspended.....C. H. Crowell has returned to San José from the State of Nevada, and is teaching the Hester District School. He is an able and accomplished teacher who merits a much better salary than he gets.....James G. Kennedy is teaching the South-end school in San José. He keeps a good school and stirs around generally. It is rumored that he is a prospective candidate for the office of County Superintendent. The name of Mr. Lighthall is also mentioned in that connection.....Professor Hewitt has a fine school at Santa Clara. He is a quiet man who understands his business.....C. B. Sowle is doing well at Vallejo. He has an able assistant, A. W. Dozier. Externally the school-house at Vallejo is a fine one, internally it could hardly be made worse; in fact, it is worse than the State Normal School barn, which is saying a good deal in the way of condemnation. Vallejo has a new course of study.....Dr. E. J. Schellhouse has engaged to teach the school at Pleasant Grove.....A. H. McDonald is deservedly popular in Sacramento. He is a careful, painstaking, hard-working teacher.....Deputy Superintendent

Eickhoff looked as gay as a lark last month notwithstanding his hard work on the new State course of study.....Tracy is deep in the mysteries of law after office hours.....B. B. Redding, member of the Sacramento Board of Education, has gone to Europe on a six months tour. He will doubtless bring back some good educational notions.....Professor Randle, at Stockton, has a very fine High school class. He is one of the solid teachers of the State, in fact, the *tallest* kind of a teacher. He is to be a candidate for the office of County Superintendent.....Superintendent Leadbetter has bought a ranch and is going to farming.....Newell's bookstore, as usual, is the headquarters of the Stockton pedagogues.....Cottle, ex-Superintendent, is a bloated Federal official in the United States Land Office.....Hammond has just got back from Philadelphia, where he has been learning to make pills.....Thomas E. Kennedy is teaching at Mariposa.....Dr. T. H. Rose has returned from Washington to engage in teaching again.....Dr. Clark has resigned his position as City Superintendent of San José.

SACRAMENTO is to have a revised course of study. Superintendent Denson and several hard-headed members of the Board of Education, taking a common-sense view of the situation, determined to cut down the old course of study about one half. A worse course than the old one could not well be devised. The evening schools in Sacramento have proved a success.

MARTINEZ has just completed a fine school-house at a cost of $7,000. Stockton has built another fine school building.

BOOK NOTICES.

From A. S. Barnes & Co., New York:

NATURE AND UTILITY OF MATHEMATICS. By Charles Davies.
THE CRITICAL SPELLER. By Professor A. L. Barber.
THE SANITARIAN. A Monthly Journal.
THE LOGIC OF ACCOUNTS. By E. G. Folsom.
AN EXAMINATION OF DEMONSTRATION OF DAVIES' LEGENDRE. By Chas. Davies.

From A. Roman & Co., San Francisco:

GETTING ON IN THE WORLD. By William Mathews. S. C. Griggs & Co., Chicago.

From J. W. Doughaday & Co., Philadelphia:

ELOCUTIONISTS' MANUAL. By J. W. Shoemaker.

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THE

CALIFORNIA TEACHER.

JUNE, 1873.

VOL. X. SACRAMENTO. No. 12.

[*For the California Teacher.*]

FUNDAMENTAL PRINCIPLES OF TEACHING LANGUAGE.

TRANSLATED FROM THE GERMAN BY MRS. LANE.

II.

1. Taken in a wide sense, the teaching of language in our schools has for its purpose to regulate, correct, and enlarge the pupil's sphere of thought; to practice him in the certain and quick comprehension of what he reads and hears, and in the clear and correct expression of his own thoughts and of the thoughts of others. This purpose is accomplished principally by means of varied exercises, and by cultivating the feeling of the genius of the language. Thus our teaching of language aims at making the language of eloquent discourse and literature intelligible to the pupil. And this style of language is not always distinct from the colloquial; on the contrary, the two often approach each other most nearly. To illustrate: we have before us a complete and elegant discourse; one main thought underlies as groundwork the separate thoughts uttered, and these latter group themselves around the former, and, in subordination to it, flow together in unity. A sermon will illustrate this. The requisite mental capacity being first possessed, he who has been trained in the study of language *will be able to grasp and hold fast to the main thought of a sermon, speech, lecture,*

or other discourse. The main thought is the product, the result, the total abstract of the thoughts belonging to it.

2. These separate thoughts, whose product is the main thought, again divide themselves into larger or smaller groups of thoughts, which groups consist of a number of opinions or propositions; for example, each division of a sermon is a larger group of thoughts, ever subordinate, however, to the sermon taken as a whole. To this principle our second requirement is annexed, viz: that one must be able to distinguish for himself the principal and subordinate, or major and minor parts of a complete discourse, to be conscious of them, and also of their relations to the discourse as a whole.

3. Finally, we come to what is called in the study of language a sentence; the sentence, again, is a unit, composed of separate parts. Further, around the principal sentence we find dependent sentences grouped, and around the subject and predicate of a simple sentence the other members of the sentence. We now state our third requirement, viz: the cultivation of a mental sensibility, by which one feels mentally conscious of the single parts of a sentence, and of their relations to the whole sentence.

4. Every part of a sentence consists of words which have for their foundation a certain sense or meaning, idea or conception. *To find out this sense or meaning, to unite it to the idea or conception which that part of the sentence is intended to express,* is the fourth thing required for understanding a language.

He who has progressed so far as to fulfill these conditions, to satisfy these requirements, has laid for himself the best foundation—has opened for himself a road which will surely lead him to his aim—to be able to express himself in refined and elegant language.

The foregoing indicates of itself the most efficient means to be used by the teacher in order to accomplish the purpose of instruction in language. I will make mention:

1. Of such means as do not immediately fall within the sphere of instruction indicated as belonging especially to the method of teaching language.

a. *The teacher, in all the instruction which he gives, must study a strict order of thought, and an easy and simple manner of presenting his thought.* Every lesson upon a given subject must be a dis-

course complete in itself, whose separate groups of thoughts the teacher has so to divide, give prominence to, and distinctly mark, that they are clearly distinguished by the scholar's perception also. The more smooth and measured the recital of the teacher, or his description of subjects belonging to the domain of natural history, or other subjects, the sharper he, on the one hand, draws the line between the separate thoughts, while, on the other, he makes his pupils also sensible and conscious of the relation of the separate thoughts to each other, so much the greater will become the capability and inclination of his pupils to direct their attention to the unity of the discourse, and to arrange, in their proper order, groups of thoughts, according to their divisions and subdivisions; in a word, to understand the discourse.

b. *In all recitations the pupils must be accustomed to give their answers in the form of complete sentences, and, by degrees, to express themselves more and more fully in regard to what they have heard or seen.* Such a demand upon the scholar forces him at the same time to follow the teacher with the strictest attention. Thus it is judicious perseveringly to maintain with the pupil a loud, distinct, and smooth tone of speech. The pupil must also learn to take time for his own utterance, to observe his thoughts, their order, and connection.

c. In the reading lessons, instruction in language is to be worked in by establishing the habit of loud, distinct reading in which the punctuation marks, or dividing points are rigorously observed. Every sound, every syllable, every word, every phrase, every simple sentence in a compound sentence, and also the latter itself as part of the whole, must be brought out well cut and sharply defined by the voice; thereby the scholar finally attains also to the conscious p rception of every separate thought contained in the piece read, together with the images and ideas thereof. It becomes continually more and more possible for him to gain an insight into the organism of language in its unity.

d. *The teacher must read to his pupils with clear, distinct accentuation, suited to the meaning, every piece selected as a reading lesson.* The purpose of this reading by the teacher is to furnish the pupils with a necessary model, and, at the same time, to make

it easier for them to understand the piece; and it is principally by the manner of accentuation—something which cannot be expected from children—that the reference and relation of the thoughts to each other is made intelligible and comprehensible.

In the uniform application of the four means mentioned, more will be gained in enabling learners to understand and use written language than by all other methods heretofore in use.

[*For the California Teacher.*]

SENSE-PERCEPTION, OR OBJECT TEACHING.

TRANSLATED FROM THE GERMAN BY MRS. LANE.

A. WHAT IS SENSE-PERCEPTION TEACHING?—Sense perception teaching, or object teaching, is instruction concerning objects perceived by the senses of the child. This perception is divided into two classes, viz: first, of those objects of which the senses take direct cognizance; second, of objects not present, and in regard to which imagination or memory must be called to aid the senses. Instruction here is oral, and consists in so directing and influencing the child's perceptions that he acquires a clear idea and distinct impression of the object viewed, and is able to express his knowledge of it.

This branch of instruction is so important that it may well be called the *soul of elementary teaching*. Comparing the mind of the child to a field, proper sense-perception instruction includes everything which animates it and makes it fertile, and we may well agree in opinion with those who exclaim: "Away with reading and writing in the first school year; sense-perception teaching should be its alpha and omega." Let us consider :

B. WHAT OBJECTS SHALL BE SELECTED FOR INSTRUCTION.—We would answer, as a general thing, those objects which come within the sphere of the child's life. This, however, does not completely answer the question. As in all other instruction, here, too, we must advance from what is most readily perceived by the eye to what is more difficult to perceive; the most difficult being what we may call indirect perception, where the object is not directly present to the senses, but is presented

through the medium of the memory or the imagination. Hence near objects with which the child is familiar should be selected—those whose size renders them easy to be viewed. In this respect, what better than the child's own body?

By degrees, introduce such things as are less familiar to the child, and whose size renders them less easy to present to the eye. Finally, when the child's mental development warrants it, proceed to objects of indirect perception.

C. IN WHAT MANNER SHALL OBJECTS BE PRESENTED IN SENSE-PERCEPTION TEACHING?—*a.* This instruction is most successful when the *natural* objects are presented directly before the child. This way is most attractive to the child. Look at him and you will see a certain expression of joy on his face at *finding* so much in these familiar and often insignificant objects, at *hearing* so much about them, and, finally, at being able to *say* so much about them.

b. Models, or *casts*, are tolerably good substitutes for the natural objects. In this case the teacher can select this or that object from among the child's toys; for instance, a wagon, a house, a drum, etc.

c. When we have neither the object nor a model of it, representations or pictures of it will, to a certain degree, answer our purpose. I say to a certain degree, because if these representations are not quite large and distinct, and especially intended for object teaching, they hinder more than they help; better, then, to have recourse to chalk and blackboard.

D. WHAT FORM OF INSTRUCTION IS TO BE ADOPTED?—Although in this kind of instruction the teacher must impart before he can receive, the chief feature should, nevertheless, be a progressive, or gradually unfolding system of questions. After the child has examined the object carefully, and in various ways, the teacher has so to work that the child shall have a clear knowledge of his perceptions and received impressions, and be able both to recount what he has learned to himself, and, although in his own way, to express himself thereupon to others.

In regard to the answers, let it not be forgotten that the teacher should never be satisfied with single words, but must insist upon it that the answer shall always be in the form of a

complete sentence. At first, this indeed involves great labor; but after a time it will be accomplished. Where the children are absolutely incapable of understanding what you mean by this, there is nothing left for the teacher but to cause the child to repeat after him the complete answer; and this not merely once, but over and over again, till the child has learned the difference between a complete and an incomplete answer.

Of course, the answers are to be spoken loudly and distinctly. If the class is generally inclined to speak in too low a tone, it is exactly in this branch of instruction that it is easiest for the teacher, by some little digression, to improve this failing. There are always a few scholars present who speak out with a clear voice, and these are to be held up as models to the faint-voiced or faint-hearted ones.

One important and indispensable thing in this department of instruction is *chorus* speaking. In the first few weeks, especially, is it advisable to have every correct and complete answer repeated in concert; and later, although it may be somewhat neglected, yet such exercise should never be entirely omitted.

After the teacher has said, and caused to be repeated by the class, all which he had in view in regard to the object under consideration, then should follow a review, in which the teacher should, by questioning, draw out again from the children what has already been shown and said of the object in its different parts. It is advisable, also, at fixed times, to review previous lessons.

Finally remains yet one task for the instructor, viz: the combining (of course, we mean as far as practicable) of the individual particulars learned. This combining of perceptions and ideas received through the senses is, indeed, no light mental labor; and for little children it must first be taught—the road must be broken for them. It is enough, at first, if they learn to unite two short sentences. Even in the higher classes it is almost impossible to obtain from the pupils a perfect exercise of this kind, in which all that has been learned is presented as a well-rounded whole; and hence the primary teacher should avoid making so high a demand upon the little children. Let him ever bear in mind that he is never to go beyond the capacity and mental strength of children.

E. GENERAL ORDER, OR TRAIN OF THOUGHT.—As there is no medicinal agent suited to all diseases, so here there is no method universally applicable to all cases. Perhaps, however, a few general starting points may be given for the course of conversation; these to be abridged, or amplified, according to the nature of the object discussed. Such a general train of thought will be as follows:

1. Name of the object. (The owner; where found, where usually kept.) 2. Nature of the object. (Meaning of its name; joining together of words composing name.) 3. Parts. (Relation of parts to each other; perhaps, also, principal and lesser parts.) 4. Form. (Size, weight.) 5. Material. 6. Color. 7. Maker. 8. Use. (Use of separate parts.) 9. What can be done to it? (Moved, broken, polished, cleaned.) 10. What must not be done to it? (Let fall, bent, played with, wet.) 11. Comparison. (With older children, or those who have been trained to think.) Attention may also be drawn to 12. Symbolical signification.

If any one be inclined to find fault with this diagram, or if any one wish, perhaps, to place the parts before the nature, or the color before the material, let him do so; the facts remain the same.

F. PURPOSE OF SENSE-PERCEPTION TEACHING.—This purpose is threefold:

1. *Sharpening of the Senses.*—Of children may be said: they have eyes and see not, ears and hear not. But to them this is no reproach; for the mind still slumbers, the steersman of the eye is yet unpracticed, the soul's photographer too inexperienced. How much escapes our own eye, which, nevertheless, lies open and clear before us. Only when a well versed expert approaches and directs our eye, draws our attention to this and that, do our eyes first open. But now, after being brought to a certain standpoint, we ourselves discover much which we did not before see.

What to us is a master-work of art, or a complicated machine, to the child is often the most simple object. He sees a slate, but he does not see that it has four corners, and that the frame is composed of four pieces. Such seeing, such intelligent seeing, is to be practiced and promoted by this method of teach-

ing; the sense of sight is thus to be cultivated. The same with the senses of hearing and feeling, so far as lies in the province of this branch of instruction.

Sense-perception is the foundation of all our knowledge and ability. If, then, we lead our children to correct and clear perceptions, and prepare them with attentive eye and ear for all which they see and hear, so do we provide them with a watch-word which shall be an important aid to them, not only in the lessons of the school room, but throughout their whole lives.

2. *Sharpening of the Mental Powers.*—Sense-perception teaching enriches the little pupil, not merely in ideas, opinions, and conclusions, but it also gives him—or, at least, ought to—the power to form the same for himself.

If, now, this method of instruction be, as all rational, sensible teachers have proved it, so excellent a whetstone for the mental powers, why is it that we find, here and there, warders of schools to whom it seems to be a thorn in the eye, and who, therefore, cannot endure it? The "*why*," I know; and many others know it, too.

3. *Creation and Cultivation of the Power of Language.*—Even to those who have had but a few weeks' experience in elementary teaching, I need not remark how exceedingly helpless are the little ones (with a few exceptions) on their first entrance to school, in the use of their mother-tongue, and how poor they are in words.

Although this want is in part natural, and hence excusable, yet it is not wholly so in all cases. Oftentimes it is the fault of those who have previously had the training of these children.

If the elementary teacher has, in all other branches, opportunity to lift, as it were, by the arms, out of this twofold poverty, this is markedly the case in sense-perception training. Here the especial purpose, the aim ever in view, is, in every lesson, to enrich the vocabulary of the little learner—to improve his grammar. This can and will be effected if the elementary teacher proceeds with the greatest possible clearness—if he advances slowly, and does not lose patience. Tiresome, indeed, is it, and a thing to which not every one is suited, to speak and to question for long hours of things which in our eyes are most insignificant; to torment one's self with some simple form of

expression, sometimes for a quarter of an hour at a time, before it becomes understood and fixed in the mind. So much greater, however, the pleasure with which one later observes the child's fluency and wealth of words.

G. WHAT SYSTEM SHALL BE FOLLOWED IN THE SELECTION AND ORDER OF OBJECTS TO BE CONSIDERED?—*Denzel* gives the following: 1. The school room, and what it contains. 2. The school. 3. The human body. 4. Domestic and family relations. 5. The parents' house. 6. The city, or town. 7. The garden. 8. Fields, public squares. 9. Trees, or woods. 10. Mountains, hills, valleys. 11. The water (springs, brooks, rivers, bays, seas, oceans.) 12. Boundaries. 13. Animals. 14. The sky (clouds, sun, moon, stars.) 15. Changes in Nature (day, night, seasons.) 16. Nature in general, and the human race.

Knauss, in his excellent book, *The First School Year*, divides the subject matter into groups corresponding to the four seasons of the year, whereby the reference of the single object to the proper season may, indeed, introduce very intricate relations.

Krause, whose *Exercises in Thinking* (3 vols.), although sometimes overstepping the limits of the course, and from whom the elementary teacher, and especially teachers just commencing their profession, may learn very, very much, makes this division in his work: 1. Exercises in making distinct impressions from sense-perceptions. 2. Exercises in creating conceptions or ideas from impressions. 3. Exercises in combining ideas so as to form opinions. 4. Exercises in drawing conclusions from opinions or judgments formed. With children from six to seven years of age this last exercise should only be touched upon in the slightest degree.

Most practical teachers certainly agree herein, in that in this kind of instruction less depends upon the "what" than upon the "how."

For my own part, seeking, in general, not to lose sight of the old rule, "From the easy to the difficult," and endeavoring to consider from every possible point of view the object studied, I strive to teach the pupils to form very early—the earlier the better—from previous separate studies, limited, well-rounded, and the most complete descriptions possible. But in sense-per-

ception teaching this old rule is only of relative value. Give to a teacher, unskillful either by nature or from want of earnestness, the most simple object, and he will use it to no purpose except as a means of vexing himself and of worrying the children. On the other hand, give the most complex object for a study to a skillfhl teacher, and he will know how to seize hold of it, and to transform its bones into milk, or, at least, into pap.

I hold, therefore, that the most important principle in the selection and order of objects for sense-perception teaching is that they shall be strictly practical, viz: 1. Objects convenient to handle and to view. 2. Objects with which the child is familiar. A tuning-fork would be a convenient, but not a familiar object. The teacher should, in his selection, take into consideration the locality and other relations in which his pupils live; for instance, in a large city he would not select a churn for an object lesson to little children. 3. Objects which may be examined in many ways, and to which many things may be connected.

[*For the California Teacher.*]

PRIZE ESSAY ON FROEBEL'S KINDER-GARTEN SYSTEM.

Froebel gives the highest rank in his kinder-garten system to active amusements. He did not, indeed, begin with this idea; for, as a follower of Pestalozzi, his efforts in, and his ideal of, education sought in science alone the foundation, the basis, of Pestalozzi's sense-perception principle. Later, however, he considered active and entertaining exercises of the greatest importance. This view of Froebel's is clearly to be perceived as early as the year 1807, when he undertook the education of two sons of Her v. Holzhausen. He stipulated that he should be permitted to reside with his pupils in the country, and to combine with scientific instruction suitable practical rural occupations, gardening, and other physical exercises. Although Froebel, at this time, spent much labor on his toys or gifts which were to be founded on mathematical principles, seeking to bring the same into a system of successive steps, it was, nevertheless, while fulfilling this engagement that he laid the foundation of his future method of systematically arranged active exercises.

If every teacher kept in mind the ancient proverb, *mens sana in corpore sano* (a sound mind in a sound body), this was certainly Frederick Froebel. The more he reflected upon it the more it became the motto, the leading thought of his educational plan. He had learned that motion is the original force of all things; that it produces life; that it preserves life. And if Pythagoras, with whose system of philosophy the principles of Froebel were, perhaps, most nearly related, maintained that "the essence of the world is numbers," so we also find Froebel, in his views of nature and man, announcing the principle that "the essence of the world is motion."

Froebel's fundamental studies of the natural sciences and mathematics, his deep-searching insight into Nature, his unceasing, infinite love which attracted him to childhood's tender age, these it was, which, after he had perceived the all-controlling power of motion, led him to announce the highest of those principles which composed his system of education, to be the following:

The child is to be developed—that is, to be formed from *within* outwards—by the harmonious unfolding of all the powers and impulses dwelling within him; while, on the contrary, the acquisition of all knowledge which comes merely from without, beyond himself, is to be avoided. This is to be accomplished not by dictation and repetition, but by perception, conception, speaking, doing, and creating.

This development method of education corresponds to the child's impulse or instinct for motion. The smallest, most delicate child the nursling, after a short period of rest, exhibits the impulse to grasp something with its little hands, to throw out its feet, to press itself against something. This is not merely a token of its physical well-being, it is rather an attempt to use the powers it possesses. By degrees it seeks to raise itself up in its bed, to free its limbs from tiresome constraint, and very soon it exerts itself, often with great effort, to stand upon its feet. The loving mother is its watchful, unwearied guide in these attempts; she delights in the progress her child makes in these trials of its strength. But she often deceives herself, rating too highly the measure of the child's strength which increases but slowly; oftener still does she seek to restrain its motions, to repress the exercise of its powers.

Hereupon Pestalozzi lays down the principle that "the first hour of the child's education is that of his birth."

Although this education relates first of all to the bodily functions of the infant, yet is the mother also to begin early to keep in mind the mental health or welfare of the child. "On the one hand, she is not to hold him back from anything of which he is quite capable; on the other, she is not to burden, to embarrass him with that of which he is not yet capable." Pestalozzi begins at the child's cradle, with the A, B, C of sense perceptions. He desires that even to the nursling such impressions of the outer world shall be given, shall be designedly brought before its senses, as corresponds to its own desires, and which are salutary to its bodily and mental development. Together with this attention to the earliest impressions upon the child's perceptive faculties, he recommends to mothers that they observe in what the child is most ready and dexterous. Each individual possesses an inherent tendency to one or more characteristic excellencies; these tendencies are to be confirmed in the kingdom of the senses. To effect this it is necessary to study the manner in which the individual's powers can best be developed; holding to this as a guide, we may then be able so to train his senses, so to train his physical being, as to promote our race's advance in the wisdom and virtues of life. This training of the senses is to be recognized as the leading strings in the child's pupilage in goodness, and to this it is to be held until sense-ennobled by this guidance, and no more in need of leading strings, it is raised to self-dependence in ripened virtue.

During his long and felicitous life was Pestalozzi thus endeavoring to point out to mothers how the child may be brought up in the household circle from the cradle to his sixth year. "The child," he says, "must be incited to a healthful activity; instead of carrying it discontented upon the arm, the older children instructed therein, are to play with the little one, and fraternal love, oft disturbed when this is made a mere office of watching and care, will rather be increased when made a mutual pleasure."

While Pestalozzi was thus, even in his latest years, endeavoring to urge on the activity of the child, Frederick Froebel was the true discoverer of the child's *impulse to activity*. Thereby

was Iverdon's great principle of teaching first introduced into the region of reality. Froebel says: "Man is like his Creator, a creative being. God created matter and space; man limits them. God creates the infinite; man the finite." The education to this likeness to God should begin as early as possible, for "even in the child the creative forming principle early shows itself, and that, too, in a high degree. So soon as it can independently move its limbs it begins to handle matter, to move it and turn it, to separate it and unite it. Hence from that period it is to be considered and treated as a creative being, to be made capable of and perfected in self-creation. In the nourishing of this natural impulse to action, and to the care and attention given to the first employments of the child, everything is linked, and from the same must proceed everything which is to be done for the human development and education of the child. The impulse to activity corresponds to the triple nature of human action—"to do, to feel, and to think."

Froebel would deprive one-sided *verbal* education of its former importance, and, at least in the first steps of education, dispense with it, opening a way to education through *doing*, by which thought and work, perception and action, should be inseparably combined. According to his clearly expressed meaning, verbal instruction is to be thrust into the background, and education and the consequent training of the creative forming principle be begun and continued from the cradle onwards.

Thus Froebel, according to his idea of education, combines all education of young children with *doing*, whether it be either as infant to that of the mother, or, later, in its kinder-garten days, to that of the pupil, to his plays and occupations. "The activity and senses of the body of the infant," he says, "is the first germ, the first expression of the physical powers; playing, building, and shaping, the first blossoms of youth; and this is the time when the human being is to be fertilized for future activity, industry, and capacity for labor." The healthy child will be active; therefore it is indispensable that its surroundings so correspond to this impulse as to nourish and promote it. By action, spontaneous action; by occupation, self-occupation, the child grows; next comes the act of beholding, of looking upon; this is explained by speech, by words; and this in turn awakes thought.

On the means by which skill and dexterity are to be introduced into life, Pestalozzi and Froebel perfectly agree. "The child must be incited to a salutary activity through the medium of play." But while Pestalozzi would have this incitement intrusted to an older brother, or sister, directed to do it, Froebel would place this guidance in the hands of the mother, and of women and young girls especially trained for the purpose. While Pestalozzi made the confined family dwelling-room the scene of the child's earliest training, Froebel created a spacious educational institution, to which he gave the poetical name of kinder-garten. The plan of the institution not only admits children of from three to seven years of age, but has a system of exercises corresponding to their bodily condition. It strengthens the body, trains the senses, gives employment to the awaking mind, and makes it sensibly acquainted with nature and the world of man, guiding mind and soul, and leading each little one into harmony with itself. In order to accomplish this proposed purpose, Froebel has resource to active exercises, and then to the gifts and industrial devices invented and reduced by him to a system. His means of instruction also embrace, although only in the commencement, gardening, rambles in the open air, singing, story-telling, explanation of pictures, and the religious element. The final aim of this method of education is the forming of bodily and mentally healthy human beings. While active plays, working in the garden, and rambles, develop chiefly the limbs and the whole body, as well, also, as the power of the will, Froebel's gifts and industrial devices, combined with singing, narrations, and explanations of pictures, form and cultivate the senses and the mind of the child. Both harmonize and mutually support each other, even as the body and soul of man sustain each the other, and form a harmonious whole.

Froebel's series of gifts is formed upon a mathematical basis. Stereometrical bodies and planimetrical figures are placed in the hands of the child. Froebel thus wholly deviates from the customary toys of children, without, however, rejecting them. He often observed that children wearied and tired of their toys; he saw them busy themselves with tools so unfitted and ill-adapted as in different and later stages of life would arouse the

deepest sympathy of the philanthropist, and serve as an earnest admonition to improvement and remedy.

"*Kommt, lasst uns den Kindern leben!*" he exclaims; that is, let us stand by them and assist them in their wearisome labor; and then from the depths of his thought he utters this sentence: "Let toys be the means by which we develop the bodily and mental life of the child, as by means of implements we fashion and frame external life." In reference to mathematics as the foundation of his system of education, he says: "Mathematics gives to man a fixed point, a sure guide, for the study of the inner connection existing in the multiplied diversity of Nature. Without mathematics, human education is an instable fragment and botch, and places insurmountable limits to the development for which man is destined; for the human mind and mathematics are as inseparable as the human soul and religion."

[*For the California Teacher.*]

CRUMBS OF LITERATURE.

I.

If some of our Grammar School scholars knew a trifle less about percentage and square root, and a trifle more about Shakespeare and his brethren, might it not be an advantage? First grade girls have been known to say that Shakespeare was an American poet, and that Chaucer died a few years ago; and I have heard it confidently asserted that first grade boys know, as a general thing, considerably less about literature than the girls, the former usually confining their reading to DuChaillu, and the latter to Caroline Lee Hentz and Mrs. Southworth—not mental food of the best quality, perhaps.

The study might be made a very interesting one, even to the dullest and most formless minds. A list of works, whose titles are the least interesting part, might easily be dispensed with; also, the exact date of an author's birth and death. But if the most celebrated authors of English and American literature could be grouped in the centuries in which they lived, and some idea obtained of the general style of their works, it would be a

very great deal gained to the young minds, which, with all their square root and percentage, are mostly groping around in the dark.

In order to awaken an interest and fasten individualities upon their minds, a system of anecdotes might be found useful; frivolous in themselves, perhaps, but not frivolous in their effects, if one scholar in ten feels therefrom a desire to know *more;* and, frivolous or not, a great advance on Mrs. Southworth and DuChaillu, whose influence we know, even if we ignore it.

We like to know about the little foibles and follies of our favorite authors ourselves. We like to go back of great books, speeches, or pictures, and find that something from which the book, speech, or picture was made—the individuality of the maker.

Perfection is not in the least to our taste. We have considerable sympathy with the man who wanted to ostracise Aristides because he was continually dinned into his unfortunate ears as "The Just;" and while we know that noble works cannot come from mean and petty souls, yet we enjoy hearing what a glutton the ponderous Johnson made of himself on boiled leg of mutton, and read with no small interest of Byron's rakishness, and Dickens' separation from his wife. We seem to forgive them their mountain tops if they come down sometimes to our plain.

Our pupils might not be interested in knowing when Chaucer died; for to ourselves only the shadow of Fame lingers over his name, and his glowing words are rusty on our modern tongues; but they and we will readily remember that he hated monks and loved his ease; and open ears wide at the legend, true or false, that he escaped from London Tower by turning traitor to his comrades.

The Instauratio is a hard name, and savors too much of word analysis to be interesting; but let us talk of Bacon, the mean, unscrupulous politician: "The greatest, wisest, meanest of mankind." The man of wonderful genius, writing books with one hand and taking bribes with the other; the man who painted devoted friendship with his pen, but practised towards his true, good friend ingratitude. The Lord High Chancellor

of England, winning in his prime the highest honors which royalty can bestow, having fine houses, broad lands, trains of servants, hosts of so-called friends, yet falling, falling, falling deeper and deeper into the mire of bribery and corruption, until we behold him in his old age disgraced, convicted, banished, no longer envied and admired, a poor, petty, miserable schemer; and they will be too interested to forget.

The Arcadia is dusty upon our library shelves, but who does not love to read of Sir Philip Sidney, that star, almost alone in the crowded sky, whose lustre no cloud has ever dimmed. His life was a more perfect poem than his pen ever wrote; brave even in *his* courageous time, and full, too, of *moral* courage; ambitious, indeed, but not for himself; proud, indeed, but not of himself. Beautiful and pure, gentle and noble, and chivalrous of heart, the darling and glory of his country! And his death as worthy of his life, their hearts will thrill to hear of the young soldier on that bloody field of Zutphen, who, with a soldier's dying thirst, burning tongue and brain, motioned away the solitary cup of water which was held to his parched lips, with those sublime words of self-sacrifice: "His need is greater than mine." That battle amid whose smoke he died was one of right and liberty, against wrong and oppression, and it was meet that he should close upon such a battle-field with so holy and heroic a deed, a life which had neither speck nor flaw.

Of Shakespeare's works we could tell them more; tell that at his name the others, however great, fall back abashed. They have seen the names of Macbeth, and Coriolanus, and Julius Cæsar on the play-bills, we may be sure—the boys at least; and it would not be difficult for them to straighten out in their minds the little that they know, and add considerable to it. Authentic anecdotes the critics have not left to us; their exasperating researches have taken away the little that we had, and given us nothing in return. That little story of his poaching was a great satisfaction to us; but it was first questioned, then doubted, then scouted. We are told this might have happened, that that is probable, and the other is possible; but we are chary of our belief when the ground slides away from beneath

our feet in that style, and we should feel rather guilty to hand to our pupils such very slippery ropes. It is a consolation to reflect that our divine Shakespeare has at least proved the Juggernaut of many of these commentators, and left them mangled by the wayside.

It is not necessary, we could not expect, and indeed would not wish them to read Paradise Lost, until many years have passed over their heads, and many, many thoughts through their minds. It is only through time and pain that our hearts can take in and respond to the words of a long-suffering man. For them is the poetry of youth; Milton's is written for a riper age. Yet they might learn much of the rugged, stern, much-enduring old Puritan, whose noblest qualities, like certain seeds in the ground, needed the pelting of fierce storms to make them grow. He was so petty in one way, so noble in another, he *could* not bear to be contradicted, yet he could bear, and did, with calm and heroic patience (and, after all, patience is the highest type of heroism), blindness, poverty, persecution, and neglect. "They also serve who only stand and wait." The pathos goes straight to the heart! He was charmingly human, for he quarreled with his wife, and domineered over his three daughters with pitiless tyranny; he decorated his dwelling with the fine hangings from dismantled Whitehall, which was rather poor humanity, in fact; and for all his "face as fair as an angel," his heart was only a man's.

The name of Alexander Pope is not one for them to be ignorant of, although he could hardly be held up as worthy of either admiration or respect. He was born into the world a poor, tiny, mishapen child, and even his genius could not make his mind otherwise than poor and miserable too. In his literary work he had no troubles, no obstacles; none of that vexing delay "which maketh the heart sick." At sixteen he was recognized a poet; at twenty-five he was already a veteran in the world of letters; and, rare quality in a poet, his most pitiless critic was *himself*. But Pope's days were full of bitterness, for all his satisfied ambition; he lived, essentially, "in the world," and he was so jealous, malignant, and revengeful, that he poisoned the springs of his own life.

We despise, in all our anger, the wasp which *stings;* and we

can call Pope nothing else, when we think of him in his study, ignoring all claim of friendship or gratitude, and embalming in the amber of his irresistible satire the personal defects of those who should have been sacred, because they had been his guests; but he tickled the world, and gained the victory by turning the laugh against his enemy. No doubt, every lash of the whip, every hateful sneer, every stabbing epithet, was a salve to his wounded self-love, and brought to his shriveled heart a glow, which no deed of self-denial, or valor, or love, could ever rouse there. We feel that he is so fenced in with his own narrow interests, so absorbed by his petty pursuits and his petty jealousies, that he possesses none of that broad understanding of human nature, none of that going out of his heart into other hearts, which goes far towards making a poet. We could *tell* our boys and girls more of the Dunciad than we would wish them to *read*. His satirical humor does not stir the noblest or best feelings, and his tenderest pathos starts no tear. We may admire, but we cannot throw down the book with warm enthusiasm and thrilling blood, and cry with unbounded admiration, "Pope was a genius!" The character of the *man* shines out too much in the work; the epicure, the careful, jealous, malicious author; the capricious friend whom a little scorn or a little slight would convert to a bitter enemy, there is through it all such a miserable leaven of selfishness, that we would hardly care to have the young minds know him too well.

C. G. D.

[*From the New York State Educational Journal.*]

ARE SCHOOLS BETTER THAN THEY WERE?

It is the fashion, at Conventions of Teachers and elsewhere, to ridicule schools as they were, and to talk much of progress and improvement. So general is this custom that a listener is disposed to wonder whether there were in the olden time any schools deserving the name, and to pity his ancestors for the ignorance for which they cannot be blamed. But if the question at the head of this paper were put to vote, even in a convention of teachers, the result would not be a universal *aye*, or

it would be so with serious mental reservations. And certainly many men and women in every community have grave doubts on this point, and either boldly deny the fact, or modestly assert that they *suppose it must be so*, without being able to see precisely where their superiority begins.

No one covets the name "old fogy," but in these days, as at all times, *conservative* is a word of respect rather than of reproach. Probably few of those who exult in being noticed in reports as "live teachers" would risk their reputation by throwing a shadow of doubt upon the assumption that all the innovations of the day are substantial improvements, but in the presence of many of them a true conservative pauses, and puts the perplexing, the sometimes staggering question "*wherein* is this better than the old way except in its claiming to be so?" Not a few, who cannot analyze a method and expose its sophistry, yet see that sophistry is hidden in the process, and some, it is true, shake their heads sagely and are confident that teaching has been one of the lost arts, since *they* left school.

What shall be the test; the comparative cost of education? the nicety of grading, the completeness of the superintending, the frequency and minuteness of written examinations, and the comfort and even elegance of the school houses and their furniture and equipment generally? the learning of the teachers and the grade of their diplomas? Shall it be the "graduating" exercises, and the "concert recitations," the receptions, and the re-unions, and the associations of alumni? Or shall it be the new text-books on either the "production" or the "objective" method, and the teachers furnished with all the modern improvements, and the "*professional*" spirit instead of the pedagogical spirit? None of these; but the result in intelligence and character of the individual; the *opportunity* which the system of schools gives to all, and the extent to which the school *reaches* and *influences* and *educates all*.

Most assuredly our schools make a better appearance. Subjects are taught in them which the fathers never dreamed of in their philosophy. Science in all its branches has been brought down to the level of the meanest capacity. Diplomas of all sorts are plentiful as leaves in June. Everybody is a graduate of some "institution," and most teachers are "Professors."

The Regents examine us, and the Superintendents inspect us, and both publish report after report on every conceivable point in education. The teachers in town, county, State, and nation assemble in convention and resolve this and that in an ecstasy of self-admiration, and visit a new place next year—the Springs, or the Falls, or the Mountains and the Lakes—and repeat the same pleasant and inspiriting programme. Is the wish in their case father to the thought, or do they speak the words of a too easy credulity, and follow the lead of the over-sanguine who put the show for the substance? The number of weeks of school-time, and the number of hours in school per diem are continually shortening, vacations are growing longer and holidays are multiplying; is *this* the point of excellence? Time must be found for what in the days gone by would have been thought mere fancy work; almost every teacher has his hobby; this one *drawing;* that one *elocution;* a third *impromptu compositions;* a fourth must have an immediate change of text-books; a fifth a new system of credits and reports; a sixth must "introduce" gymnastics, or intellectual algebra, or the diagram system; and none of them can be happy without his special contrivance; is *this* the excellence of modern schools? These might co-exist with the greatest improvements, but only as incidents, certainly not as essentials, and hardly as necessary indications. They might all go along with perfect schools, perhaps, but they could not be the source and spring of improvement, nor proper cause of too much boasting.

Pupils in our schools do, certainly, learn more—that is, they go over or "through" more books and pass more examinations; but it does not follow that they really *know* more. The quantity they receive and give forth is vastly greater; but what proportion of all this do they "mark, learn, and inwardly digest?" Many schools do, certainly, make a good appearance; but do their pupils learn a true and simple obedience, a proper self-restraint, a constant courtesy of manner, or are they only repressed for the time being by the array of laws and regulations, and do they come to think they may do elsewhere with impunity and without guilt what is forbidden at school, and that all these pertain to the school boy in school, and not to the man in the world? Is truthfulness a more common virtue than

it was? is vulgarity of speech, is uncleanness of thought and act when the teacher's ear and eye are removed, less frequent? Are such things any more a part of the ordinary teacher's burden then they were? If not, we impeach the schools of not "keeping up with the times," instead of lauding them for being anything like the bulwark of our liberties.

On another side we have a few questions to ask. The village school is better; but how about the "rural district?" Are the smaller schools away from the centers of business and growth, improving or retrograding? Do the schools at the cross-roads, on the hill-sides, in the new and sparse settlements, receive a due share of the impulse of progress? And in the villages and cities are there more or fewer street Arabs? more or fewer who do not get even the rudiments of the poorest education? more or fewer who can find no place in our theoretically graded schools, and for whom *no other provision whatever is made?*

On still another side, a question. Is the spirit of our teachers better? Are they as a whole more devoted to teaching as an occupation in which they find something more than daily bread, more than the means of making a better appearance, or of being in positions supposed to be more respectable? There are, and we rejoice to say there are, many noble men and women engaged in teaching; but of the thousands are the *majority* devoted to the calling for the sake of that calling, or for their *own* sake?

It will not be taken as answer to these questions, which are not raised in a fault-finding spirit, for some one to describe the old school house, and the old pedagogue, and the spelling and parsing classes. That we can do for ourselves as well as any body can do for us. Nor will it do to fly off into glittering generalities about "progress" and "improved methods" and less severity of government; all that is admitted with qualifications. Nor will it do to assert again "that teaching is a profession."

The question has two sides: it is raised seriously, for it has been, and is, seriously thought of. Are our schools *on the whole* better than they were? No.

[*From the New York State Educational Journal.*]

TECHNICAL EDUCATION.

The complaint is frequently made, and with too much justice, that our American education leaves men and women without anything which they can use in actual life, excepting only the power which comes from their mental discipline. It has failed in that, for a great majority of our youth, it has been utterly aimless. To be sure, our seminaries and colleges, for the most part, have been the open doors through which young men pass into professional life; but what does our education provide for the great multitude of young men and women who never see the inner walls of a college? Simply nothing. It turns them out into the world without the ability to do anything, opens no avenue for skilled employment for them, and only makes them too proud to labor with their hands, as they might have done without its influence. It merely deprives them of the taste for labor, and gives them nothing in its place. But more than this. Little Johnnie Jones is told by his admiring school-mistress, or fond mamma, how Lincoln, who was a poor boy, finally became President, and how Johnson, the son of a poor North Carolina corn-cracker, came to live in the White House at Washington. The stories of countless others, who commenced with nothing and became great men, are poured into his youthful ears until he is certain he must have been intended for a United States Senator at least, if not for a President. As he grows older, he forgets that Lincoln split rails, Johnson rejuvinated dilapidated pantaloons, and Grant peddled cordwood in the streets of St. Louis, but thinks that to be great he must shun work, dabble in politics, and hang around grog-shops. He would rather sit in idleness all day on the steps of some corner grocery and wait for a chance shilling, than to work in the garden back of it for a certain dollar. Such men spend their lives in attending caucuses, getting up political excitements, and playing whippers-in for some more successful politician. Ninety-nine of every hundred of them never get as high as County Sheriff, while the majority make a questionable living, and end their lives in the jail or poor-house. It is all right to teach boys to be ambitious, but do not forget the most important part, that honest success always implies labor. Toil is the pathway to honor.

It is a well known fact that in most of our cities and towns it is seldom that young men of American descent can be induced to learn a trade which requires hard labor, as they seem to look upon it as a disgrace, but you will find them sweeping out cigar stumps from law offices, skulking behind the counters in dry goods stores; or, still worse, lounging around saloons and billiard rooms, under the mistaken idea that these are *gentlemanly* (?) employments, and those which require hard work are not. Too many boys would rather eke out a precarious existence as a lawyer, or clerk, than begin as a workman in a machine shop, and by hard labor with hands and brain work up to a position of affluence and honor. The country would be just as well off, and without doubt the members of the profession would rejoice at heart, if not another young man entered the legal profession for the next ten years.

To remedy this aimlessness and disinclination for the active duties of life with which our education leaves our youth, we need more craft-schools, where boys can become practical engineers, chemists, machinists, printers, and even farmers. That the necessity for such special training is beginning to dawn upon us is evident from the rapidity with which scientific schools are being established and filled with students. But all the young men in the country cannot be civil engineers, any more than they can be lawyers, and we must open other avenues equally honorable and profitable for those whose tastes lead them elsewhere. The scientific schools, then, are merely the advance guard of the great number of craft-schools which we will yet have to supplement our elementary education. In Europe we find hundreds of these craft-schools in which one may fit himself specially for any proposed occupation. In the United States, excepting schools for the professions, for engineering, and for mining, we have but little which may be called "craft education." The night and day schools of Cooper Union, some of our commercial colleges, the agricultural departments of most of our State colleges, the schools of drawing and design in Boston, and the Worcester Free Institute for teaching the application of science to the mechanical arts, are the only craft-schools which we call to mind that seem to be doing this greatly needed work. The leading position in drug stores, machine

shops, manufacturing establishments of all kind, the great commercial firms, most of the positions of the government civil service, and many others which might be mentioned, ought to be filled by men specially educated for them. When a young man is to be turned out to fight the battle of life, he ought to be provided with a weapon for the warfare. It would be just as sensible to send a regiment of soldiers into battle with broomsticks for guns, as to turn young men and women into the world empty handed. They can only do as the soldiers would—seize upon the first thing on which they can lay hands, and club their way for a little while before hastening to the rear. We ought as soon as possible to provide every young man with some way of procuring an honest, honorable livelihood, and most of all by our education fit and incline him for hard labor of body and mind as necessity may demand.

[*From the Philadelphia Press.*]

SELF-IMPROVEMENT IN CITY AND COUNTRY.

Education is not knowledge. The most that we are able to get at school is the mere skeleton of learning. The flesh—the living body—most men create for themselves after they leave school, if they ever get to know much at all. The very name education means literally but the leading into, or direction toward knowledge, and a fair start is all that the best education will do for us.

Our rural friends are given to envying the advantages of city people in this matter of education; and very often when the grosser allurements of city life are not sufficiently tempting to attract the better class of youth from their country homes, a thirst for higher intelligenee often supplies a motive for dissatisfaction with their quiet way of getting along. There is no doubt but that the means of education are more abundant in populous centres; but it is no less a fact that true knowledge and wisdom, the results of a good education, are seldom achieved by a thorough-bred city boy. Learning, as we find it in cities, is very much of a sham. It is pursued merely as a

means of making one's self agreeable in society. A man who can "converse on any subject" is the envy of his circle. Years are spent in picking up bits of this or pieces of that, till he who pursues this course shines as brass, and sometimes passes for the real gold; but the genuine metal is not there.

It is a remarkable fact that almost all the great men of science were not city-born. Even in public life most of the distinguished either came direct from the farm, or in some way rural life entered largely into their early years. In the city we can gather from books only. We get knowledge but at second-hand. In the country we can deal directly with nature; and by the aid of a good education to put us in the right direction for learning, there is no comparison with the city in the advantages which a country life affords.

The chief attraction of city life to the country youth is the supposed facility for "getting along in the world." So many have been lucky without any great amount of knowledge, that it is natural to suppose that what one man has done another can do. But luck in fortune-hunting never keeps pace with population. The *pro rata* diminishes as places grow older, but real knowledge always tells. A thorough knowledge of any one subject is one of the surest roads to distinction; and with that distinction, if there be but moderate business abilities, riches generally come.

What a grand chance for study the Winter nights in most farm-houses afford! Even in the suburban districts, where it is neither city nor farm, the long evenings are generally free from frivolous visitors, and allow of time to the young to improve themselves. Hundreds of the young who now give themselves to light reading of a doubtful character, or who spend their time in lying on the sofa, or rocking in any easy chair, might become as famous as Tyndal, Agassiz, or Gray, by doing no more than improving the chances which the quiet of farm life affords to study a little regularly in the leisure time as it comes.

Natural history especially offers a very inviting field. It is not now, as it once was, a mere accomplishment. The mere city boy, who can talk about what he has read in the text-books, is nothing in this line now. But natural history has had such a wonderful bearing on the world's progress—such an amazing

influence on the advancement of humanity—that the real scientist has become the pet of society, and receives the homage of the princes of the earth. And this real science is so easy to gain. It comes not so much of reading as of training the eyes to see, and the other senses to take note of the little things about us. Elementary books we must have; these let us know what of that we see is already known. A few standard text-books—a pocket lens costing perhaps fifty cents—a good common-school education, and tolerably good powers of observation, are about all that is necessary to give one a fair scientific character.

Many a farmer's boy looks out upon the heavens, wondering what sort of worlds are the bodies moving through the space above him; or thinks how pleasant it would be to see the strange sights he reads of in foreign lands. And yet about him, close under his eyes, are hosts of new worlds waiting especially for him to explore, and which he will find much more wonderful than anything he can find abroad. Let our country boys think of these things. They may not have the glitter and show of a city life, but they have the substantial elements of an education which is fast becoming popular; and they have what city boys have not—the time to intelligently pursue and make use of them.

EDUCATION.

If a pedagogic Newton were to construct a philosophy of education, the fundamental proposition, we fancy, would run somewhat in this wise:

The educational gravity of matter—measured by the mental action it excites—varies directly as the amount of curiosity it awakens, and inversely as its distance from the thinking centre.

Joyous activity of sense and intellect is the truest evidence and most significant attendant of healthy juvenile culture, and whatever means of experience or information most excites such activity is best for the development of mind. In considering what knowledge is most worth at the outset of education, it is therefore necessary to take up a position quite the reverse of that chosen by Herbert Spencer in his able and admirable essay

on this subject, since knowledge having no measurable value in itself—knowledge worth nothing as knowledge—may be of immeasurable value in early culture because it appeals directly and closely to the child's instinct of curiosity, and by evoking germinal thinking sets the mind growing as sunshine does the germ of a plant. The kitten on the hearth, the weed that springs by the door-stone—anything in the little world that hedges him round about—is more serviceable for the child's instruction and culture, if rightly used, and more worthy of his study than the most important matter over the fence and without the sphere of his mental attraction. These are to him what the collections of the museum, the laboratory, the library—all the machinery of higher culture—are to the maturer disciple of learning. And it is the first business of the educator to take up the child's development, at whatever stage it may have reached, and carry it on by these simple and homely means precisely as the advanced science instructor leads his followers along the paths of investigation. In this work method is everything. Right thinking is learned by thinking aright, and in no other way; and right teaching has right teaching always in view as the first and highest object to be secured. Loose, timid, dishonest thinking is too often the result of much teaching; it is never the result of genuine instruction—which is little else than proper guidance in the conscientious pursuit of what is true by personal investigation; a sort of scientific work, we may add, which the child is capable of doing in his sphere as thoroughly well as a Tyndall or a Huxley in his.

One of the most hopeful characteristics of modern primary teaching of the better sort is the increasing recognition of these fundamental truths; a tendency to exalt right habits of learning above recitable results, and a disposition to estimate the value of educational matter by its nearness to the centre of the child-world thought and experience, and its fitness to stimulate and satisfy the instincts and appetites of childhood, rather than by its usefulness to grown-up people. Primary instruction is consequently becoming more and more attractive to children; in other words, more and more in harmony with their condition and needs.—*Scribner.*

ERRORS IN TEACHING.—Wendell Phillips, in a recent speech in Boston, stated that the school education in that city was inferior to the system of one hundred years ago, in this—that our grandfathers combined labor with study, teaching the body and the mind at the same time, and that we moderns must return to the old style. This seems very discouraging, when we consider how much time, thought and money have been expended on education during the last century. From some points of view, we seem to have made more progress than was made in any five preceding ages. In large, well ventilated school buildings, simplified text books, and humanity of teachers, we certainly have gained much. We have arrived so far that every one desires education. But now the question comes—What is education? Is it going to school during a period of seven to ten years; spending two to three hours daily in study and five hours in recitation; eight hours out of the twenty-four passed in continuous brain work—not brain work of one's own seeking or fancy, but memorizing the thoughts of others; eight hours' use daily of the brain of a growing animal, without any use of his body, his hands, his practicability? Let any grown man or woman try this work for a while, they who have no restless muscles and limbs impelling them to motion and change. Let them try what six, or even four hours' continued mental application will work in their quiet frames. Let them, too, be deprived in their mental drill of individual choice and ambition, as our youths are. Let them have a routine laid down for them regardless of taste or preference, and without any higher motive than emulation, and the desire to make a good show. The fact is, our youth are sacrificed—drilled and crammed into mere clay. And they bear it so patiently, go day after day, and year after year, to have the life and energies taken out of them, and say never a word. Why is this? Because they are so conventionalized and artificialized, that they think it is a sign of reprobation not to like school. So we have every other kind of strike, but no school strike; societies for the prevention of cruelty to every animal but children. Now and then one hears a disappointed parent detail the many advantages his son has enjoyed in learning everything, and that yet he shows no aptitude for anything in particular. Then everybody pities so good a father with so idle a son. But nobody thinks of the victim who has had his head addled and crammed, and his hands

hanging idle by his side, during all these years. Do not our school systems practically teach that labor is not respectable? And is not a practical result of this all head and no manual labor system that we are cultivating a race of positionists, young men and women who despise labor as vulgar and ungenteel, who will not consent to compromise their broadcloth or fine dresses by earning their living, unless in some genteel office? Thus we see this unmuscular, helpless humanity developing every day around us; and we keep on cramming and driving our children through the same process without a thought that the evil and its cure lie with ourselves.

PROFESSOR AGASSIZ ON POPULAR EDUCATION.—What our colleges teach is mainly the traditionary learning of the middle ages—nothing better. Harvard is not a university—only a tolerably well organized high school. The lower schools are of course following in the same track. If this learning were the best of its kind, our condition would be better—but it is only the dregs of scholarship, "and in saying this I wish to be understood to the letter." What is our grammar, for example? It is no longer a living matter, but reduced to formulas from which all the living spirit has fled. What we need is a knowledge of nature—of those forces of nature upon which all industrial science is based, and which lies at the foundation of all our modern civilization. At present the phenomena of natural science are not taught in our common schools with any thoroughness; the reason why clean water should be used rather than dirty water is not understood by the pupils—there is only a prejudice in its favor, and they take it upon hearsay. They ought to know why it is better; they ought to know something about the elements of the soil which they are to cultivate and on which they live. The analysis of soils is no harder for a child of twelve years than the construction of a sentence. Electricity, too—the telegraph by which we live every day—a child of twelve could learn all about that, but he does not. What we want is teachers that shall know these things with thorough knowledge, which is not the case now. The Normal Schools do not educate teachers of the kind we want in this respect. They give instruction in botany, geology, physiology, zoölogy, etc., but it is from text-books alone, and in the poorest possible manner. Our schools are the old tread-mill of knowledge, while they might be made living sources of it; and this applies to the schools of Massachusetts, as well as to those of the United States in general. Indeed, Professor Agassiz thinks it might be easier to start on the new course of education, which he desires to see, earlier in some of the new and less advanced States than in New England, because of the misplaced confidence we have in our present school system.

DEPARTMENT OF PUBLIC INSTRUCTION.

To County Superintendents.—No supplies will be sent from this office except a requisition is received stating *how many* of each kind of blanks are needed. Order at one and the same time all the blanks you may require; do not write to-day for Teachers' Reports, to-morrow for Census Marshal's Reports, and next week for Trustees' Reports. *Do not order in excess of your needs.* Registers are to be used *only* by public schools teachers, and by them *only* for the recording of the school statistics required to be kept by law. Over one half of the registers sent from this office must have been used for some illegitimate purpose. Registers are a very heavy expense to the State, and we must insist that economy be practiced in their use. In the majority of schools one register will be sufficient for several years; and it is not to be permitted that a new register be furnished every new teacher, or at the beginning of every new school year. We are prepared to fill all orders for blanks actually needed; but we are not prepared to furnish enough blanks to turn each County Superintendent's office into a respectable stationery shop. *Verb. sat sap.*

The School Law is at present out of print. In a month or two another edition will be printed.

The following is a list of the blanks furnished by this department. Any blank not enumerated will not be furnished:

Teacher's Certificates.
Teacher's Reports.
Trustees' Reports.
Census Marshal's Reports.
Appointments of Census Marshal.
Election notices for electing Trustees.
Election notices for voting tax.
Certificate of election of Trustee.
Certificate of appointment of Trustee.
Agreement between Teacher and Board of Trustees.
Orders on County Superintendent.
Superintendent's warrants on County Treasurer.
Registers.
Blanks for Superintendent's Annual Reports.
Labels for District Library Books.

County Treasurers are no longer required to report to this office. Will the Superintendents please notify the Treasurers?

For the June examination the State Board has prepared no papers for reading, penmanship, and oral grammar. Each County Board will please frame its own questions in these studies. *County Boards must examine in all the branches prescribed by law.* Complaint has been made to us that one County Superintendent, in order to save time and to finish an examination in *one* day, omitted some of the studies prescribed by law. All certificates granted by that County Superintendent are *illegal.* County Boards should allow candidates ample time to pass their examination. One day is too short; two days, including evenings, is the least time which should be allowed for an examination. County Boards have the power to determine the time in which a paper must be finished; but for the more important branches, such as arithmetic, grammar, geography, algebra, etc., at least two hours ought to be allowed to each paper.

THE BLANKS entitled "Report of County Examination for State Certificates," which are sent with the examination papers, are to be used *only* for reporting to the State Board the credits allowed by the County Board to candidates for State certificates. These credits are to be entered in the column headed "Credits on County Examination." *The next column is to be left blank.* The blank should give the name of the candidate, together with his Post Office address. The county from which the report is sent should also be indorsed on the blank. But the signature for the Secretary of State Board of Examination, the date, and the grade of certificate granted must be left blank. All the papers of an applicant must be sent, including the answers to the general questions, the answers in mental arithmetic, and the exercises, and questions in reading, penmanship, and oral grammar. Every paper must be properly credited. County Boards will please bear in mind that the branches as given on the blank are those and only those enumerated by the School Law, and candidates must be examined in all these branches. The standard cannot be changed by any power short of the Legislature, and if for any studies no papers are sent, or no credits, failure must be marked against them. Papers not properly credited by the County Board, will not be accepted.

The last annual election for School Trustees, being the first held under the provisions of the Political Code, has laid bare what cannot but be called serious defects in the law. Under the California School Law of eighteen hundred and seventy, the Trustees were required to post written or printed notices in at least three public places in the district, one of which shall be the school house, at least five days previous to the time of meeting, specifying the day, time, and place of meeting. If the Trustees failed to give notice thereof, as required, then any citizen of the district might give it; but no such meeting was illegal for want of due notice. The Political Code changed the above provisions to the following: "Not less than five days before such election [for electing School Trustees] the Trustees must post notices in three public places in the district, which notice must specify the time and place of election, and the hours during which the polls will be kept open." It will be observed that the clause of the old law whereby no election was declared illegal for want of due notice, is left out, and, therefore, to make an election legal *full five days notice* must be given. So in the case stated by one County Superintendent where only *four* days notice was given, our decision must be that this insufficiency of notice makes the election null and void. It will be further observed that the Trustees are the only persons who have the power to post such notices; and that the provision of the old law under which any citizen of a district had the right to post such notices in case the Trustees neglected or refused to post them, is ignored by the Political Code. This has certainly worked hardship in the case submitted to us where the Trustees flatly refused to post the required notices. And though notices were posted by some of the electors, and though in accordance with these notices, Trustees were elected by an almost unanimous vote of the district, yet, according to the opinion of the Attorney General, the election is null and void. In this case the remedy is provided for in certain sections of the Penal Code which we herewith republish. (See next paragraph.) In a third case no notices at all were posted. "Notwithstanding," writes our correspondent, "a respectable number of our citizens, parents of children, and of course, interested in the school, assembled at the school house between the hours of seven and nine P. M., and according to the School Law, elected one Trustee for three years, and another for an unexpired term of one year. Now, a petition is in the hands of our County Superintendent asking him to pronounce the

election illegal on the plea of no notice according to law. * * * A great many think that as it was the regular annual election, the people not only had a right, but it was their duty to elect Trustees. * * * Otherwise a Board of Trustees could continue themselves in office indefinitely, provided the County Superintendent would appoint them from time to time." Still the election is illegal for want of due notice. The delinquent Trustees can be punished under the sections of the Penal Code given in the next paragraph. In a fourth case, some of the citizens, finding that the Trustees had neglected to call an election, posted a notice calling a school meeting for the election of Trustees. A day before the election one of the Trustees found this notice, tore it down, posted another notice calling a meeting some hours previous to the time set by the citizens. At the time set by the Trustees, three persons met and elected themselves Trustees; at the time set by the citizens another Board of Trustees was elected. Query: Which Board is legally elected? Answer: Neither. The first Board is not legally elected because no *five* days' notice was given as required by law. The second Board is not legally elected because the *Trustees* did not call the election. No Trustees were legally elected in that district, and the County Superintendent must appoint. We must confess that but for the decision of the Attorney General to the contrary we should have held that in case the Trustees neglected to post notices, some elector might remedy this omission. All who feel themselves aggrieved may find redress under the following sections of the Penal Code:

Extracts from the Penal Code. Section 176—Every willful omission to perform any duty enjoined by law upon any public officer, or person holding any public trust or employment, where no special provision shall have been made for the punishment of such delinquency, is punishable as a misdemeanor. Section 19—Except in cases where a different punishment is prescribed by this Code, every offence declared to be a misdemeanor is punishable by imprisonment in a County Jail not exceeding six months, or by a fine not exceeding five hundred dollars, or by both. Section 661—In addition to the penalty affixed by express terms to every neglect or violation of official duty on the part of public officers, State, county, city, or township, where it is not so expressly provided, they may, in the discretion of the Court, be removed from office. Section 772—When an information in writing, verified by the oath of any person, is presented to the District Court, alleging that any officer within the jurisdiction of the Court has been guilty of charging and collecting illegal fees for services rendered, or to be rendered, in his office, or has refused or neglected to perform the official duties pertaining to his office, the Court must cite the party charged to appear before the Court at a time not more than ten nor less than five days from the time the information was presented, must proceed to hear in a summary manner the information and evidence offered in support of the same, and the answer and evidence of the party informed against; and if on such hearing it appears that the charge is sustained, the Court must enter a decree that the party informed against be deprived of his office, and must enter a judgment of five hundred dollars in favor of the informer, and such costs as are allowed in civil cases.

IN A certain district the candidate who received the highest number of votes was an alien who had taken out only his first papers—that is, only declared his intention of becoming an American citizen. As the candidate was not fully naturalized he was not an elector and not eligible to office. As in the case under consideration, a disqualified person was elected Trustee, the election is null and void, as the candidate who receives the next highest number of votes is not entitled to the office, according to a decision of the Supreme Court in the case of Saunders *v.* Haynes, 13 Cal., p. 145.

TRUSTEES ELECTED at the last annual election must qualify within ten days after their term of office begins, namely, the first Saturday in July. Of course any Trustee has the privilege to qualify immediately after being elected.

COUNTY INSTITUTES.

REGARDING the proceedings of the Santa Clara Institute we quote from a correspondent as follows:

The Santa Clara County Teachers' Institute for the present year was held in the District Court room, San José, April 17th, 18th, and 19th. Superintendent Baker presided. R. E. Hewitt and C. H. Crowell were chosen Vice Presidents, and Miss Alberta S. Montgomery, Secretary. About one hundred teachers were present during the session; nearly all of whom were engaged in teaching in the county. Superintendent Baker delivered the opening address. It was a review of the condition and progress of the schools of the county, and a discussion of leading educational questions. Among the subjects presented for the consideration of the Institute and discussed by them were the following: The Course of Study adopted for the Schools of the State; Teaching Music; Mental Arithmetic; Primary Drawing; Methods of conducting Recitations; Natural History; Methods of teaching Composition: Grammar; Physical Education; Methods of teaching Reading, etc. Evening addresses were given by Professor Leggett on Educational Hobbies; by ex-Superintendent Swett on Evening Schools; and by W. H. L. Barnes, Esq., on Technic Education. The exercises throughout were of a most interesting character. The Institute was pronounced by all who were in attendance one of the most practical and successful ever held. The following resolutions, among others, were adopted: "Resolved, That at present teachers should not be imperatively required to teach the science of music in our public schools." "Resolved, That we consider it impossible in the ungraded schools of Santa Clara County to follow the course of study prescribed by the State Board of Education; and we deem it unadvisable to insist upon carrying it out absolutely." "Resolved, That the thanks of this association are due and are hereby tendered to our County Superintendent for the manly and straightforward manner in which he has uniformly administered his official duties, and for the fair and impartial manner in which he has presided over our deliberations." "Resolved, That the Superintendent would be justified in withholding the salary of those teachers who, without good cause, have not been present during the sessions of this institute."

THE SAN DIEGO COUNTY INSTITUTE convened at San Diego, April 16th, 1873, and held a three days' session. From the opening address by the County Superintendent on "The Object of Teachers' Institutes, and the duties incumbent upon its members," to the closing lecture by the State Superintendent on Botany, illustrated from nature, the proceedings were infused with the spirit of "practicability;" and instead of the time-honored platitudes on the dignity of the profession, and the inverse ratio of its responsibilities to its emoluments, the order of exercises consisted mainly of class and blackboard exercises in the different studies. The action of the State Board of Education of substituting oral grammar for text-book grammar in all but the first grade, was heartily indorsed. Among the resolutions we notice one indorsing compulsory education; another deprecating the too early use of text books; another setting forth the necessity of making five hours the legal length of daily sessions. The members of the institute were so well pleased and profitably entertained that it was resolved to hold another institute within three months.

UP to the present time of writing no minutes have come to hand of the Institutes held in Los Angeles, Santa Barbara, San Buenaventura, El Dorado, Placer, and Siskiyou Counties.

EDITORS' TABLE.

SANTA CLARA COUNTY INSTITUTE.—This Institute, held April 17th to 20th, was a pleasant and solid meeting of substantial teachers. There was no twaddle, but a great deal of good sense in the discussions. The whole tone of the meeting was progressive. With such teachers as Lighthall, Hewitt, Kennedy, Hawkins, Finch, and a dozen other sensible men, it was impossible for the Institute to be other than interesting and practical.

ABBREVIATIONS.—Dictate this to your first grade classes:

WALL STREET, N. Y., December 1, 1872.

SIR—Your's to h'd & cont's noted. Don't want son to study 'str'n'my. 'Twon't pay. No ships run'g to stars, and no prospect of it. All bosh, if 'twont h'lp trade. Also stop Latin & Greek. Boy'll pick up such Lt'n words as petit larceny & delirium tremens, &c., soon 'nough he'r in Gold b'd. I'm bullish on 'rith't'k & sp'g, and T'k some stock in Gr'm'r too, but I can make money 'nough without L'tn and G'k, etc. No use. I'm memb' St'k Exc'g, Chamb' Com', &c. Daboll's Arithm'tic is short of stock terms. Put boy thr'gh on margins, corn'rs, Dr. C., ct. pr. ct., cl'r house, Railr'ds, and Go'v'ts yourself, and go short on y'r Grk and Lt', &c. They'r best md'ize for the street—alway in dem'd here. I mean Dr & Cr, etc. When term ends please ship boy to Bks by N. Y. C. or H. R. with B. L'dg in hat, cons'g'n to————, B'd st. Draw sight dr'ft for bill. Money easy—st'ks stiff and short int'r'st cov'rd. Shall I get you long on 190 L. S. at 67?. Boy's tuition do for margin. Exc'hge e'sy. Yours, etc.

WE learn from the *Evening Argus*, of May 6th, that the Petaluma Board of Education has completed arrangements for opening a High School at the commencement of the next session of the public schools. "It is the desire of the Board to have the High School equal to any in the State, and scholars graduating at the same will be fitted to enter the State University. No pupil will be admitted below the highest grade of the public school. The school building at present will accommodate at least two hundred pupils, and can be enlarged to almost any reasonable capacity. The Board are now casting about for a competent Principal to take charge of the same, and the members thereof are fully aware that the success of the High School will depend upon the selection of a person fully competent to discharge the responsible duties pertaining to the position."

PERSONALS.—J. B. Casterlin and wife, recently from Michigan, are teaching at Hydesville, Humboldt County.....Mrs. Dorcas Clark, who was assistant teacher in the State Normal School for five years, was summarily removed at the last meeting of the Board of Trustees. Probable cause: Some of the Board had a "friend" who wanted the place. Patronage is a big thing.....Professor Gastry is teaching at Clayton.....Professor Hawkins has been elected City Superintendent of San José, *vice* Dr. Clark, resigned. Salary $1,000 a year.....It is reported that Professor Jones, the efficient County Superintendent of Sonoma County for a double term, will not run again for the office, as he can do better in business.....Superintendent Lynch, of Alameda County, will probably be renominated for another term. The county can do no better than to keep him where he is.

COMPULSORY EDUCATION IN NEVADA.—Governor Bradley having signed the Educational bill passed by the Nevada Legislature, compulsory education becomes a law in that State. Nevada has always evidenced a great interest in educational matters, and

in a return published some few months since, it was shown that the State stood second in the States as to the amount expended per capita for the children attending school, Massachusetts only heading it. Compulsory education is gradually gaining ground. It is now the law in several States in the Union, and in Germany, Switzerland, Austria and Great Britain in Europe. The subject will doubtless be re-introduced in the forthcoming winter at Sacramento, as California cannot afford to remain behind any State or country in the matter of education.

THE municipal authorities of Paris have just opened a "school of apprentices." It is a primary and industrial school, intended to solve the difficult problem of combining general and professional education, and training well-taught workmen. The boys, who are admitted from the age of thirteen to that of sixteen years, are apprenticed to the director for three years, and receive gratuitous education. The municipal authorities have purchased a large site on which the building is erected, on the Boulevard de la Villette. The boys are not lodged at the school, but arrive at seven in the morning, and stay till seven at night. Besides the school-house there is a building devoted to workshops, with forges, steam hammers, and all the machinery and tools for working in iron; the upper floor is devoted to wood-sawing, carpentering, joinery, and cabinet making. Between the buildings is a large garden, playground, and gymnasium.

"Larrikinism" is the term applied to a certain tendency to mischievousness in the boys of the colony of Victoria. "The existence of the larrikin," says Mr. Elkington, one of the official Melbourne inspectors, "seems due to a variety of causes, in which the immediate influences of schooling do not play a strong part. The vicious examples, sensual indulgence, and relaxed discipline observed in many households; the corresponding tendency in children to treat parents irreverently, the out-door life forced upon many young people by the scanty accommodation for the large family at home, have all borne a share in producing the larrikin; but I am strongly of opinion that the eight-hour system has much to answer for."

ARITHMETICAL SHARPS.—The following questions are the exciting topics of acrimonious discussion among the arithmetical "sharps" in the San Francisco school department: 1. How many times can twelve be subtracted from one hundred and forty-four? 2. Can twelve dollars be divided by two cents? Truly Bacon spoke wisely when he said "knowledge is power."

GRAMMATICAL SHARPS.—The disciples of Lindley Murray are agitated over the following: "He ate breakfast." What is *breakfast?* "Here he opened *wide* the door." What is *wide?* "Scrooge knew he was dead." What kind of a sentence?

CINCINNATI, O., March 24th, 1873.—The Committee on Course of Study and Text-books reported that they had examined McGuffey's series of Readers (now in use), and Harpers' United States Readers, and heard the statements of the representatives of each, and they were unanimous in the belief that a change of text-books would not be beneficial. Adopted unanimously.—*Commercial.*

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